

NO: **P008**

Committee DATE: **June 16, 2014**

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## **POLICE COMMITTEE**

TO: **Mayor & Council**

DATE: **June 10, 2014**

FROM: **Chief Superintendent Bill Fordy  
OIC Surrey RCMP**

FILE:

SUBJECT: **Vacuum Metal Deposition Chamber**

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## **RECOMMENDATION**

The Surrey RCMP recommends that the Police Committee receive this report as information.

## **INTENT**

The purpose of this report is to provide information about the Vacuum Metal Deposition Chamber technology that is being procured by the RCMP federally and deployed within EDIV LMD Integrated Forensic Identification Services (IFIS). This new fingerprint detection technology will assist RCMP and other law enforcement agencies from across the country with identifying suspects in criminal investigations. LMD IFIS has approached the Surrey RCMP about the possibility of locating and operating the new equipment out of the Main Detachment building.

## **BACKGROUND**

Vacuum Metal Deposition (VMD) is the most sensitive technology for obtaining fingerprints on solid (non porous) objects presently available in forensic science. This powerful technique uses the sequential vacuum deposition of gold and zinc to develop latent fingerprints. The instrument creates a vacuum in the chamber which allows the minute metal filings to adhere to the residue found in fingerprints. These filings will attach to the weakest of prints rendering them visible.

VMD can be used on a wide range of non-porous and semi-porous exhibits including flexible plastic packaging, plastic bottles, glass, fabrics, firearms, glossy paper or magazines. The system has the flexibility to provide vacuum deposition of other metal evaporation sources including aluminium, silver and copper. Silver, in particular, gives excellent results on thermo-sensitive paper, condom wrappers and cling film.

The technique is quick (typically less than 15 minutes for a complete process cycle) and produces high quality images with '3rd' level detail of pores and ridge shapes. The developed prints can be photographed immediately. VMD develops approximately 15% more prints than the cyanoacrylate (superglue) fuming plus fluorescent dyeing technique.

VMD can develop fingerprints on tight weave fabrics and clothing such as nylon, satin and polyester. On fabrics with a loose weave VMD can identify areas of contact (i.e., grab impressions) that can aid more focused DNA swabbing/extraction. VMD is also very effective at developing fingerprints on exhibits that have been submerged in water, even if they have been submerged for many years.

This technology is far more sensitive than traditional methods of fingerprint development and as a result has been extremely successful in recovering fingerprints in a number of cold cases where traditional development techniques have failed. "A" Division has a small and older model VMD which has recently had cold case success in bringing up fingerprints from an exhibit that solved a 17 year old Alberta homicide. This VMD unit has also been proven to work effectively on the new polymer Canadian bank notes, which could greatly assist investigations (e.g., gang related fraud and money laundering).

## DISCUSSION

RCMP EDIV has leased space within Surrey RCMP Detachment to house LMD IFIS operations, including Forensic Video Analysis, since the integrated team was first established (April 2008). This arrangement has worked well and is beneficial to both the Detachment and LMD IFIS. Recently, LMD IFIS approached Surrey RCMP Support Services about the possibility of locating and operating a new piece of VMD equipment out of the Main Detachment building. Surrey, being central in the LMD, is an ideal site to maximize access and use of the new equipment. Surrey Detachment is not only the busiest IFIS office location, but is also home to 2 federally funded IFIS members that could handle/process exhibits being sent from across the country.

The equipment would require a dedicated room or bay (roughly 100 square feet). Renovations may be required to fashion two separate work areas (separating the Chamber itself from the roughing pumps so that the noise/heat from the pumps does not disturb the technicians operating the Chamber in the lab). Furthermore, installation is recommended with outside ventilation. Project would require some minor construction to the current facility, but at no cost to the City of Surrey (all costs of installation would be charged back to RCMP LMD IFIS).

The benefit to having it in Surrey is that it will become part of the LMD IFIS unit's normal forensic processes and this enhanced service offering should result in more hits and greater successes in criminal identifications. Even though the VMD will support RCMP investigations from around the LMD, Province and the rest of Canada, having the unit in Surrey will ensure its use for Surrey specific cases. It is anticipated that that 80% of the exhibits processed will be from the LMD (and most of that from Surrey).

## CONCLUSION

The acquisition of a Vacuum Metal Deposition Chamber is a significant investment (approximately \$350,000) by the RCMP National Forensic Identification Program and will assist RCMP investigations from across the country in identifying suspects through an enhanced ability to pull latent fingerprints. The new equipment will have a direct impact and benefit to Surrey and the Surrey RCMP, and by extension to Surrey stakeholders, through improved investigative outcomes.



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