

Vital Records Certificate Printer Recommendations

Executive Summary

This paper discusses printers to be used when County Registrars print certified copies of vital records with the new Oregon Vital Events Registration System (OVERS). (Any type of printer is fine for OVERS forms that are not printed on intaglio (security) paper, such as working copies of records, etc.) This applies only to County Registrar offices and not to any other OVERS user. This paper examines the various issues involved and makes recommendations for the types of printers that should be used. Please evaluate this information to help make the best decision for the volume, speed, costs and security needs of your particular office.

This is a summary of the key points from this paper:

- The State Registrar will not, at this time, require any particular printer type or model when printing certified copies of vital records from OVERS.
- The State Registrar will inform you if and when forthcoming intelligence reform regulations require any specific printer type or model.
- The following types of printers **are recommended** for use with OVERS:
 - Laser printers with adjustable fuser temperature and/or time, with these settings at their highest values; or
 - Ink jet printers using pigment-based black ink.
- The following types of printer **are not recommended** for use with OVERS:
 - Ink jet printers using dye-based black ink; or
 - Printers using solid inks, such as the “Phaser” series.
- Multiple uses of the printer are fine; you do not need a dedicated printer. Consider a printer with multiple paper trays to help avoid unintended printing on intaglio paper.
- You need to enforce controlled access to the printer, to prevent unauthorized persons from obtaining blank intaglio paper.

Considerations

In formulating these recommendations, the Center for Health Statistics (CHS) considered four items:

- Ensuring that certified copies cannot be altered without detection;
- Costs, both for initial purchase and consumables;
- Physical security and tracking of intaglio certificate paper; and
- Meeting requirements of the Intelligence Reform and Terrorism Prevention Act of 2004.

The most important consideration is ensuring that printed certificates cannot be altered without detection. This requires a printing method that affixes ink to the security paper so firmly that it can't be completely removed without damaging the paper itself. Some printer technologies are better than others in this regard. These technologies also vary in cost, both for initial purchase and ongoing consumables. These two issues will be further discussed in the Printing Technologies section below.

Another consideration is the physical security and tracking of the intaglio certificate paper and, as a registrar, you are already familiar with this issue. You **do not** need to purchase a printer dedicated solely for certificate printing; multiple uses of the printer are fine. You may want to consider a printer with multiple paper trays to facilitate printing while avoiding unintended printing on intaglio paper. You must also enforce controlled access to the printer, to prevent unauthorized persons from obtaining blank intaglio paper.

The final consideration is meeting intelligence reform requirements. The Intelligence Reform and Terrorism Prevention Act of 2004 directed the federal government to (among other things) set minimum standards for features designed to prevent tampering with birth certificates. These rules are still under discussion and are not expected to be finalized until Spring of 2008. As part of creating the new rules, the National Center for Health Statistics (NCHS) recommended that birth certificates "...be printed using ink jet or laser printer with the paper containing a protective laminate." The National Association of Public Health Statistics and Information Systems (NAPHSIS) disagreed with this recommendation, questioning the cost and reliability of ink-jet printers in large volume offices and the costs for equipment, supplies and time to laminate documents. Immigration and Customs Enforcement recommends the use of an inkjet printer with pigment-based ink or a laser printer with a protective laminate. They also note that impact printers (dot-matrix) are the best option because they actually emboss the paper, but vital records offices are unlikely to use them. Because of the uncertainty of the final rules, it is impossible to make a recommendation that will meet intelligence reform regulations with certainty. CHS will provide you with further information when the rules are finalized.

Printing Technologies

This section discusses the different printing technologies and their suitability for OVERS certificate printing.

Laser printing

Laser printers use a dry ink (toner) which is fused to paper under high heat and pressure. In this process, the toner generally does not penetrate the paper, but sits on top of the fibers. It is possible to remove some of this toner after printing, but whether enough can be removed to alter the record without detection depends on the specifics of the printer. In many laser printers you can adjust the temperature of the fuser unit and/or the amount of time the paper spends under heat and pressure. Increasing the fuser temperature and/or increasing the amount of time the paper is in the fuser unit will result in better adhesion of the toner to the paper, making it more difficult to remove without damaging the paper. Most mid-level and higher business printers offer this kind of adjustment and it is often used when printing thick and/or heavy stock, such as cards. Check with your vendor as to whether a particular printer supports this feature; in Hewlett-Packard printers the setting is called "Fuser Mode."

CHS recommends that if you choose a laser printer for certificate printing, select a printer that has adjustable fuser temperature and/or time and set these values to their highest settings.

Ink jet printing

Ink jet printers spray a liquid ink onto the paper, which then adheres as it dries. The color in ink comes from pigments or dyes. Pigment-based ink contains extremely small color particles that are suspended in an evaporating base solution. When the ink base dries, the solids remain mostly on top of the paper but some partially penetrate the paper fibers. Because of this penetration into the paper fibers, it is not feasible to remove all of the ink without damaging the paper, so any alterations should be readily detectable. Therefore, any ink jet printer using a pigment-based black ink will work well with OVERS.

Dye-based inks contain colorants in solution with the base. This ink readily penetrates the paper fibers, coloring them as the base evaporates. This would normally be ideal for preventing alteration without detection, however because the dyes are in a solution, they can run if they get wet. Although some dyes are more resistant to running than others, they all run to a degree that is not recommended for use with OVERS.

Different printers use different types of ink. As this is written, most Hewlett-Packard ink jet printers (except their specific photo printers) use a pigment-based black ink and dye-based color inks. Most Epson printers use a dye-based black ink. Check with your vendor to determine what types of ink are used by any printer you may be considering.

Ink jet printers tend to be slower than lasers, when printing high quality documents. They also normally require changing ink cartridges more often than laser toner cartridges. A high-volume office may find they need to change cartridges more often than is acceptable. Finally, although ink jets are usually less costly than lasers in initial purchase price, they tend to have much higher consumables cost. Recently, however, some manufacturers have advertised costs approaching that of a laser printer. You will need to evaluate these different factors if you are considering an ink jet printer for use with OVERS.

CHS recommends that if you choose an ink jet printer, select one that uses pigment-based black ink. Also, carefully consider the costs in time and consumables for the volume of your office.

Other printer technologies

Impact printers are also called dot matrix printers and use a separate printer ribbon, much like a typewriter. Although no longer common because they are normally slower and noisier than other printer types, impact printers are a very secure form of printing, which actually embosses the paper with ink. It is acceptable to use an impact printer with OVERS, as long as the highest print quality settings are used.

Other printer types that use solid inks, such as thermal wax (“Phaser”) are not recommended for use with the OVERS system because the inks can generally be readily removed from the paper without detection.