**I. Scope:** This policy and procedure establishes the maintenance of an Ignitable Liquid Reference Library.

**II. References:**

ATF Method of Analysis for GC-MS Analysis of Ignitable Liquid Residues

ASTM E 1618 Section 11.1 (need for a library)

GC-MS Guide to Ignitable Liquids, Lothridge, Newman, Gilbert, 1998, CRC Press

**III. Policy:** An ignitable liquid reference library is necessary for the identification of ignitable liquids or ignitable liquid residues recovered from fire debris. Each ATF Forensic Science Laboratory will maintain its own ignitable liquid reference library. In addition, each laboratory may use published references to assist in identifying additional products for addition to their reference library.

The liquids maintained in the ignitable liquid library are used for classification purposes only. A liquid selected for comparison in casework may be one of several liquids representative of an ignitable liquid class. The selection of a particular liquid does not constitute the identification of a specific product due to the marketing practices of the petroleum industry.

Most of the liquids obtained are commercially available. Therefore, certified reference liquids are not specifically required. Given the practices of the petroleum industry, each commercially obtained liquid is considered unique and there is no expiration date associated with these liquids.

**IV. Safety Precautions:**

No specific safety requirements. Use appropriate care in handling and storing each product.

**V. Procedures:**

1. Library collection – The library will consist of samples of ignitable liquids from each class identified in the ATF Ignitable Liquid Classification System. Samples will be run on the GC-MS under the same instrumental parameters used for sample analysis. In addition to original unevaporated samples, samples in various stages of evaporation will be included as appropriate. If instrumental analysis

parameters are significantly changed, the reference liquid should be rerun to match the new instrumental parameters.

2. Library database – Each laboratory will maintain a database containing all the samples in the library. The database will contain a unique identifier for each sample, the commercial name, manufacturer/distributor, classification and data acquired (if known). Photos of containers may be placed in the database.
3. Database availability – Each forensic laboratory may review the database of the other laboratories and should request a sample from another laboratory's library as needed. All non-routine samples encountered should be sent to other laboratories.
4. Library maintenance – It is highly likely that formulations of commercial products will change. New commercially available products or formulations should be added as they become available or as appropriate. The library will be reviewed periodically to ensure it encompasses the types of products routinely encountered in casework.

## VI. Quality Control:

1. Reference ignitable liquids used for comparison in casework will be run under the same conditions as the unknown sample and compared to the chromatogram maintained in the paper and/or electronic library.
2. Section Chiefs are responsible for ensuring that the Ignitable Liquid Reference Library is maintained.