

The forensic analysis of clandestine drug records

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Abstract

The Racketeering Records Analysis Unit (RRAU) of the Federal Bureau of Investigation (FBI) Laboratory has developed a protocol for the analysis of suspected clandestine and/or coded drug records. Utilizing this procedure, RRAU personnel have been successful in determining (i) whether the records in question are or are not drug records; and (ii) the scope and extent of the illicit drug business as identified in the records.

Key words: Drug records; Cryptanalysis; Ledgers; Clandestine records; Business records

1. Introduction

All businesses, even illicit ones, maintain records. Like the legitimate businessman, the large-scale drug dealer often finds it necessary to keep track of, among other things, customers, profits, expenses, inventories, quantities purchased and sold, and monies owed. Unlike the legitimate businessman, however, drug dealers often try to hide or disguise the true nature of their records.

Over the years, police officers and government agents with no specialized training in drug record analysis have attempted to testify as experts with regard to the nature of suspected drug records. In some cases the courts have permitted their testimony; in other cases they have not. For a general review of police officer/agent expert and nonexpert opinion testimony, see: *US v. Samuels* 741 F. 2d 570, 574 (3rd Circuit 1984) (State undercover narcotics agent permitted to testify as an expert with regard to telephone conversations allegedly containing coded references to drug transactions) [1]; *US v. Brown* 776 F. 2d 397, 400–402 (2d Circuit 1985) (undercover police

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officer found to have sufficient knowledge and experience to testify as an expert regarding terms and practices used in illicit drug sales) [2]; *US v. Angiulo* 847 F. 2d 956, 974–975 (1st Circuit 1988) (FBI agent permitted to testify as an expert with regard to organized crime families) [3]; and *US v. Dicker* 853 F. 2d 1103 (3rd Circuit 1988) (undercover federal agent not permitted to introduce nonexpert 'lay opinion' testimony with regard to the meaning of statements that are 'clear and straightforward') [4].

In the mid-1980s, the Racketeering Records Analysis Unit (RRAU) of the FBI Laboratory in Washington, DC, established a protocol for the examination of clandestine drug records. Building upon protocols which RRAU had previously developed for gambling record analysis, and through the examination of hundreds of seized drug documents, various class and individual characteristics¹ of drug records were identified. These characteristics, in turn, were used to devise the protocol which RRAU Examiners utilize to determine: (i) whether the questioned records are the records of an illicit drug business; (ii) the type of drug(s) being bought and/or sold; and (iii) the scope and extent of the business.

2. Clandestine/coded records

Because most drug dealers are interested in recording only that information necessary to run the business and because most are anxious not to leave behind evidence of their criminality, drug records tend to be clandestine, or secretive, in nature. They are generally maintained on something other than preprinted business ledgers (e.g. school notebooks, personal telephone books, calendars, etc.) and the product being sold is almost never identified by name. Further, various characteristics which are normally explicitly noted in the records of legitimate businesses (unit prices, product weights, etc.) must often be derived by the Examiner. Evidence that the writer of the records is attempting to maintain secrecy in recording his transactions is a characteristic RRAU personnel factor into their analysis of whether the records document a licit or illicit business.

Those drug organizations that wish to afford an extra degree of security to their records may try to encode them using a simple substitution or other type code. In cases where this happens, the records must first be decoded or deciphered through established methods of cryptanalysis [5]. Once the records are translated into plaintext, drug record analysis can begin.

3. Drug record analysis protocol²

Drug record analysis as practiced by RRAU Examiners and Cryptanalysts is essentially a three-step process. The records are first analyzed to determine whether

¹In terms of drug record analysis, class characteristics are those notations which distinguish illicit drug records from records of legitimate businesses or other types of illicit businesses (gambling, prostitution, etc.); individual characteristics refer to those notations which identify the particular drug being bought or sold.

²All procedures describing methods of drug record analysis are taken from the Racketeering Records Analysis Unit Protocol Manual, Federal Bureau of Investigation, Washington DC, 1991 (unpublished data).

they contain the class characteristics of a legitimate business. These characteristics include, but are not limited to: the full names, addresses, and telephone numbers of customers; complete dates; a detailed description of the product being bought and/or sold; uniform and complete records of quantities being purchased/sold and logical unit prices associated with these quantities; and an accounting flow which would allow the records to be audited by a Certified Public Accountant (CPA) or the Internal Revenue Service (IRS).

Once it has been determined that the records are not the records of a legitimate business, further analysis is conducted to identify the class characteristics of an illicit drug business. These characteristics include:

Account designation(s) — a group or individual designated in the transaction; in drug records, these designations are often coded or abbreviated or a partial name or nickname is used;

Dates — many times only partial dates are recorded;

*Indications of payments;*³

Accounting terminology;

Quantity — numerical amount indicating volume of material being bought/sold;

Units — weight indicators that are consistent with weights utilized in drug transactions (kilogrammes, grammes, ounces, etc.);

Price ;

Drug terminology — general terms pertaining to the sale of drugs, e.g. ‘bindle’, ‘packet’, ‘dose’, ‘dime’, etc.;

Profit computations;

Business expenses;

Once analysis has determined that class characteristics of an illicit drug business are present, the Examiner looks for the individual characteristics indicating that a particular type of drug is being sold. These characteristics include:

Price per unit — this figure must fall within reasonable parameters known to exist for a particular drug in a particular time period and geographic location;⁴

³Often a phenomenon known as ‘dropping zeros’ is found in clandestine drug records. In an attempt to disguise the nature of the records or to save time when recording a transaction, a drug dealer will leave off the ending zeros in large sums. For example, ‘15 000’ may be recorded in the records as ‘15’. It is often possible, through mathematical analysis, to show that zeros have been dropped. For instance, if the following computation is noted in the records: ‘15 × 7 = 105 000’ and it can be shown that the ‘7’ represents seven units, it can be inferred that ‘15’ actually equals ‘15 000’.

⁴Drug prices can vary widely. Some of the factors which influence drug prices include the time period when the drug was sold, the quantity of drug sold, and the geographical area in which it was sold. RRAU maintains a computerized data base of drug prices based on information provided by the Drug Enforcement Administration, the FBI, other Federal, State and local law enforcement agencies and drug intelligence networks and publications. In this data base, prices are broken down by the above listed factors (time period of sale, quantity sold, and geographical location of sale); these factors are considered when performing an analysis.

Bale lists — inventory lists of marijuana in which identifying numbers are assigned to particular packages (often, weights are noted on these lists as well and it is not unusual to see notations indicating that the weight of packing material has been subtracted from the gross weight of the bale — this, in turn, leaves the weight of the marijuana only);

Kilo markings — a marking that may appear on the exterior of kilogram quantities of cocaine; these markings are used like 'brand names' and purport to represent the 'manufacturer' of the cocaine found inside; some purchasers regard these markings as an indication of the quality of the cocaine and will purchase only certain 'brands'; RRAU maintains a data base of known kilo markings for analytical purposes;

Drug terminology — specific terms that refer to only one type of drug e.g. 'crack', 'horse', 'bale', etc.

Once the class and individual characteristics have been identified, a determination with regard to the purpose of the questioned records can be made. The possible conclusions which can be reached fall within five major categories:

I. The submitted documents are the records of a (type of drug) distribution business.

At a minimum, the following characteristics must be present:

Units — noted or determined through analysis;

Price per unit — noted or determined through analysis and found to fall within the parameters of known drug prices for a particular period of time and geographical area;

Designation of units to accounts or volume beyond personal consumption;

Verification of delivery — multiple deliveries, indications of payments, dated entries;

II. The submitted documents are records of an illicit drug distribution business.

The same characteristics must be identified as in category I, with the exception of finding a price per unit which falls within parameters of known drug prices.

III. The submitted documents:

- are consistent with records maintained by a drug distribution organization or;
- are in the format of records which would (could) be maintained by a drug distribution business or;
- contain notations consistent with those which would (could) be maintained by a drug distribution business.

A 'consistent with...' conclusion applies to those records which lack one or more of the characteristics necessary for a category I or II conclusion but which do contain several class and/or individual characteristics of drug records as cited above. An 'in the format of...' or 'contains notations consistent with...' conclusion relates to those which are cryptic/clandestine in nature, which contain running accounts

and which contain one or more of the class/individual characteristics of drug records as cited above.

IV. No conclusion.

Based upon a review of the documents, no conclusion could be drawn regarding their function.

V. The submitted documents are not the records of a drug distribution business.

Based upon a review of the documents, their true meaning is discovered and found to be something other than drug records (e.g. gambling records, legitimate business records.)

4. Conservative presumption

As mentioned previously, RRAU personnel attempt not only to identify whether questioned records are drug records, but also to identify the scope and extent of the business. As such, the following characteristics may be discovered and included in the Examiner's report: type of drug, quantity of drug sold/purchased, unit prices, method of payment, dates of transactions, roles of individuals in the business, gross/net profits and operating expenses. When calculating totals of drugs sold or money paid, the risk of double counting or duplication of figures can result. This can be especially problematic with 'scratch' type records in which the writer of the documents has refigured the same transaction numerous times or has entered results of the transaction in more than one place.

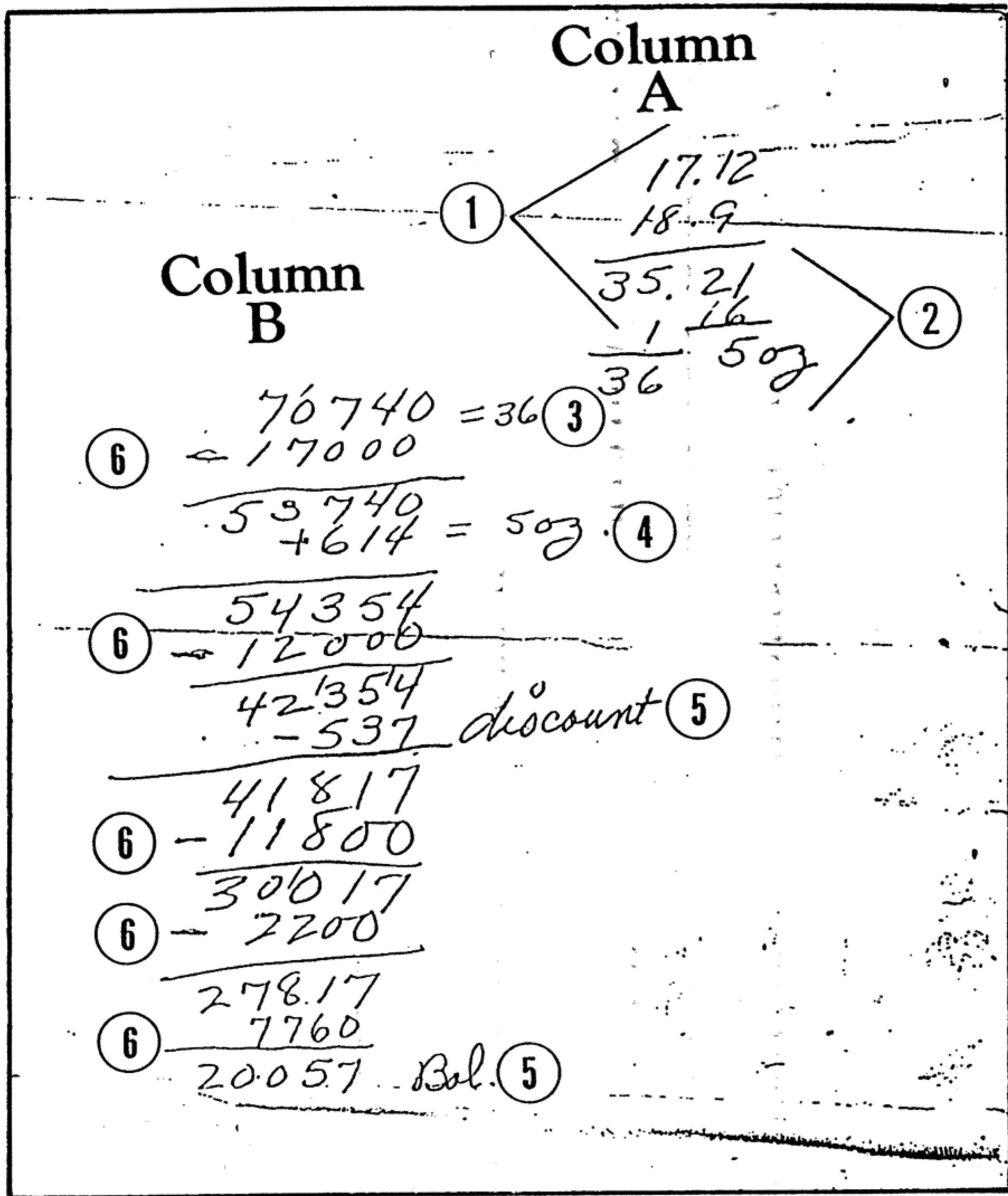
In order to reduce this problem, RRAU personnel employ the concept of the 'conservative presumption'. Utilizing this principle, all entries and calculations are compared with one another to ensure that figures are used only once in calculating totals. If any doubt exists as to whether numbers may have been already included in figuring totals or whether separate inventories may include the same drug, the numbers in question are not used. Additionally, even if all the characteristics of a drug operation exist in the records, the Examiner has the option of reducing the level of certainty of his/her conclusion where he/she feels it is warranted.⁵

While this may lead, in some cases, to an undercounting of drugs or money involved in an operation, it ensures that totals will not be incorrectly inflated and defendants will not be wrongly accused of crimes which they did not commit.

5. Example of analytical technique

Fig. 1 is a copy of an actual document which was submitted to RRAU. It is, in fact, typical of the many suspected drug records which are routinely examined by the unit. As laid out in the protocol, the Examiner/Analyst first attempts to deter-

⁵From, for instance, 'the submitted documents are the records of a drug business' to 'the submitted documents are consistent with the documents maintained by a drug distribution business.'



mine if the records contain the class characteristics of legitimate business records. Obviously, the records in Fig. 1 are not maintained on preprinted ledger-type sheets. There is no explicit description of a product being bought or sold and the records lack such rudimentary characteristics as customer names, addresses and dates. Further, it is obvious that the records are not maintained in such a way as to be auditable by a CPA or the IRS.

Once it has been determined that the records lack the characteristics of legitimate business records, the Examiner/Analyst attempts to ascertain whether they contain the characteristics of an illicit drug business. As the analysis begins, it can be seen that calculation 1 shows the addition of 17.12 and 18.9. As calculated by the writer of the records, the sum of this equation is 35.21. In terms of conventional mathematics, this is obviously incorrect. As calculation 2 makes clear, however, the writer

of the records was adding pounds and ounces of an unnamed material. Hence, in calculation 1, 17 pounds, 12 ounces added to 18 pounds, 9 ounces equals 35 pounds, 21 ounces. Or, as the conversion in calculation 2 shows, it equals 36 pounds, 5 ounces.

In calculation 3, the writer places the 36-pound figure equal to 70 740. Presumably, this figure is, in reality, \$70 740.00 and represents the writer's valuation of the 36 pounds. Support for the fact that column B represents money is found by the references in 5 to a 'discount' and 'Bal.' (balance). Both terms are generally used in business records with regard to money amounts. Calculation 4 represents the writer placing 5 ounces of material equal to \$614.00.

In order to determine the unit price for pound units of material, the following equations can be used:

$$\begin{aligned} \$70\,740/36 \text{ pounds} &= \$1965.00 \text{ per pound} \\ \$614/(5 \text{ oz.}/16 \text{ oz. per pound}) &= \$1965.00 \text{ per pound}^6 \end{aligned}$$

It is noted that \$1965.00 per pound is consistent with prices charged for pound quantities of marijuana at the time and place that these particular records were seized⁷.

Finally, the figures shown in 6 represent subtractions from an outstanding balance and, as such, show payments made on that balance. As the writer indicates in the last line of column B, \$20 057.00 is the balance owed once all payments and discounts have been subtracted.

In accordance with RRAU protocol, the following class/individual characteristics are present:

- Units* (pounds and ounces) both noted and determined through mathematical analysis;
- Price per unit* which falls within parameters set forth for marijuana;
- Amounts noted in excess of that which would be for personal consumption;*
- Verification of delivery* through payments;

As such, RRAU protocol specifies that the conclusion reached in the above case would read as follows: 'The submitted records are the records of a marijuana distribution business.' The report could further state the total amount of marijuana distributed, the value of that marijuana, payments made and balances owed to the business.

6. Verification of results

Based on interviews conducted to date, RRAU analysis has been highly accurate in properly identifying drug records and in correctly ascertaining the scope and the extent of drug businesses. Additionally, many prosecutors and law enforcement per-

⁶This is an approximate value. The actual value is \$1964.80 per pound.

⁷The time and place of the transaction was ascertained through analysis of other portions of the records.

sonnel have commented favorably on RRAU's methods and have stated that many defendants have pleaded guilty because of drug record analysis provided by the unit.

Currently, plans are underway to conduct a formal study to measure the correlation between the results of RRAU drug record analysis and the true meaning of seized drug records as related by the writers of the records. As part of this study, writers of drug records who have agreed to cooperate with the Government will be interviewed and will be asked to explain the notations contained on the records which they have maintained. The results culled from these interviews will be compared with the RRAU analysis of these same records to ascertain if RRAU procedures are yielding correct results.

7. Conclusion

Drug record analysis, as practiced by RRAU personnel in the FBI Laboratory, has been used successfully in various state, local and Federal criminal trials and hearings. In light of this, it is anticipated that the science of drug and clandestine record analysis will only expand in the future.

8. Acknowledgements

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9. References

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