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LABORATORY NO.:

1763558

PROFILE NO.:

2

SAMPLE TYPE:

SCALP

PATIENT: AUTY, CHRISTOPHER

AGE: 51

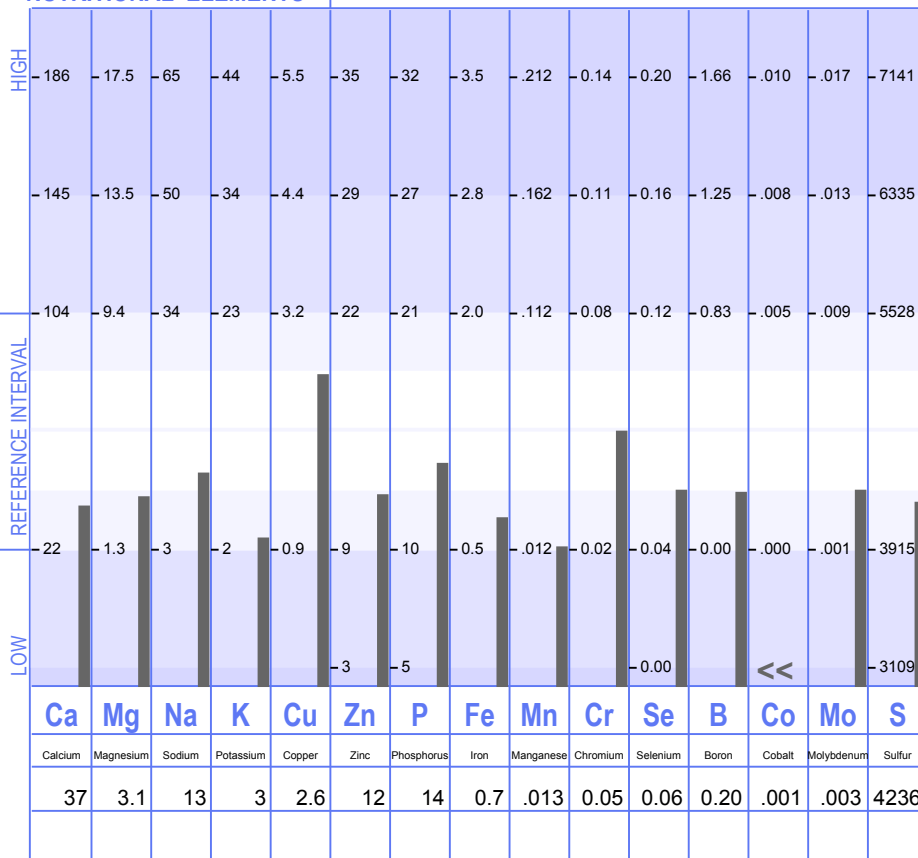
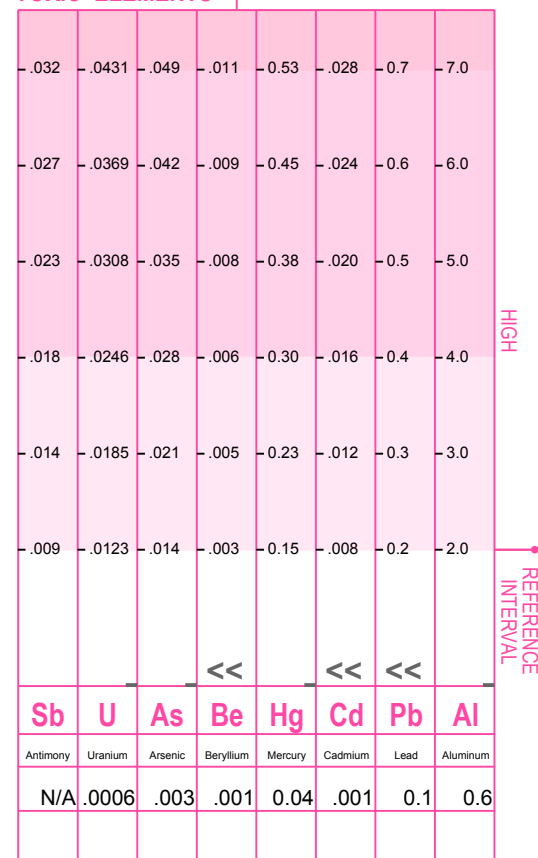
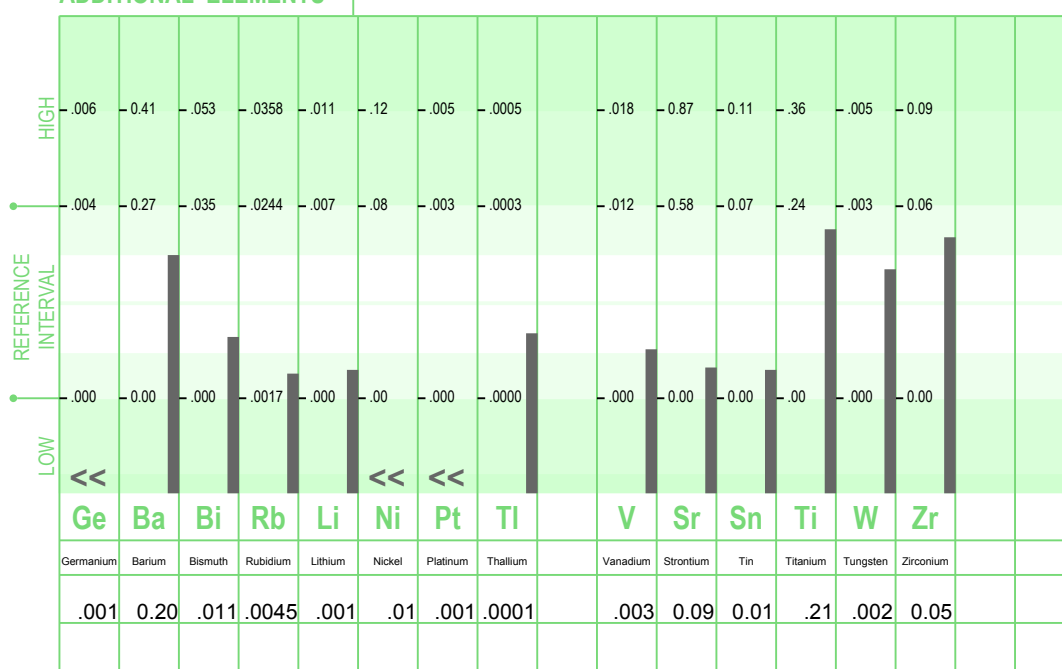
SEX: M

METABOLIC TYPE: SLOW 2

REQUESTED BY: STUDLEY, J

ACCOUNT NO.: 2216

DATE: 1/06/2023

NUTRITIONAL ELEMENTS**TOXIC ELEMENTS****ADDITIONAL ELEMENTS**

<<: Below Calibration Limit; Value Given Is Calibration Limit

"QNS": Sample Size Was Inadequate For Analysis.

"N/A": Currently Not Available

Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.

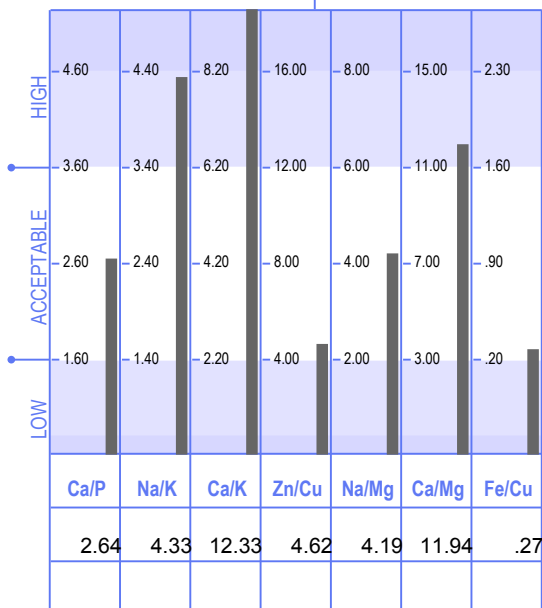
Laboratory Analysis Provided by Trace Elements, Inc.
Dallas, Texas USA an H.H.S. Licensed Clinical Laboratory. No. 45 D0481787

1/06/2023

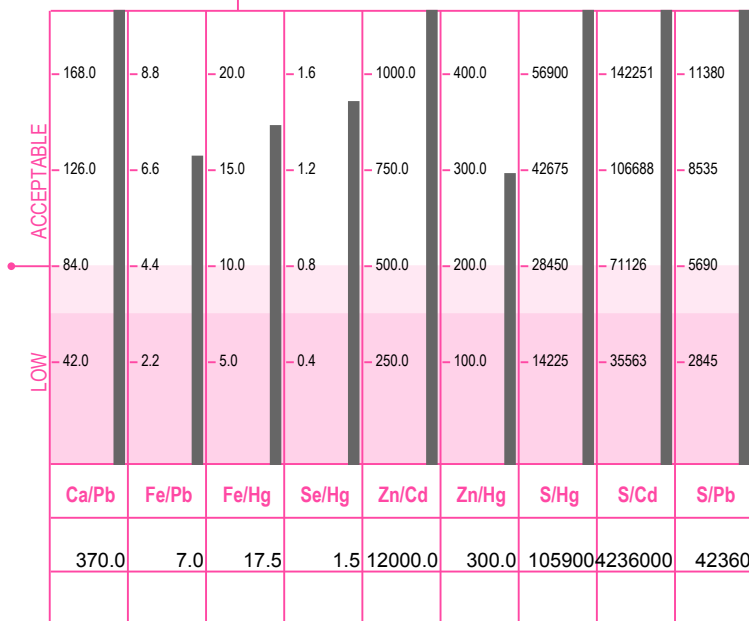
CURRENT TEST RESULTS

PREVIOUS TEST RESULTS

SIGNIFICANT RATIOS



TOXIC RATIOS



ADDITIONAL RATIOS

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	411.11		263/1
Cr/V	16.67		8/1
Cu/Mo	866.67		356/1
Fe/Co	700.00		615/1
K/Co	3000.00		6350/1
K/Li	3000.00		6350/1
Mg/B	15.50		21/1
S/Cu	1629.23		2668/1
Se/Tl	600.00		370/1
Se/Sn	6.00		3.2/1
Zn/Sn	1200.00		624/1

LEVELS

All mineral levels are reported in milligrams percent (milligrams per one-hundred grams of hair). One milligram percent (mg%) is equal to ten parts per million (ppm).

NUTRITIONAL ELEMENTS

Extensively studied, the nutrient elements have been well defined and are considered essential for many biological functions in the human body. They play key roles in such metabolic processes as muscular activity, endocrine function, reproduction, skeletal integrity and overall development.

TOXIC ELEMENTS

The toxic elements or "heavy metals" are well-known for their interference upon normal biochemical function. They are commonly found in the environment and therefore are present to some degree, in all biological systems. However, these metals clearly pose a concern for toxicity when accumulation occurs to excess.

ADDITIONAL ELEMENTS

These elements are considered as possibly essential by the human body. Additional studies are being conducted to better define their requirements and amounts needed.

RATIOS

A calculated comparison of two elements to each other is called a ratio. To calculate a ratio value, the first mineral level is divided by the second mineral level.

EXAMPLE: A sodium (Na) test level of 24 mg% divided by a potassium (K) level of 10 mg% equals a Na/K ratio of 2.4 to 1.

SIGNIFICANT RATIOS

If the synergistic relationship (or ratio) between certain minerals in the body is disturbed, studies show that normal biological functions and metabolic activity can be adversely affected. Even at extremely low concentrations, the synergistic and/or antagonistic relationships between minerals still exist, which can indirectly affect metabolism.

TOXIC RATIOS

It is important to note that individuals with elevated toxic levels may not always exhibit clinical symptoms associated with those particular toxic minerals. However, research has shown that toxic minerals can also produce an antagonistic effect on various essential minerals eventually leading to disturbances in their metabolic utilization.

ADDITIONAL RATIOS

These ratios are being reported solely for the purpose of gathering research data. This information will then be used to help the attending health-care professional in evaluating their impact upon health.

REFERENCE INTERVALS

Generally, reference intervals should be considered as guidelines for comparison with the reported test values. These reference intervals have been statistically established from studying an international population of "healthy" individuals.

Important Note: The reference intervals should not be considered as absolute limits for determining deficiency, toxicity or acceptance.

INTRODUCTION TO HAIR TISSUE MINERAL ANALYSIS (HTMA)

Hair is used for mineral testing because of its very nature. Hair is formed from clusters of specialized cells that make up the hair follicle. During the growth phase, the hair is exposed to the internal environment, such as blood, lymph, and extra-cellular fluids. As the hair continues to grow and reaches the skin's surface, its outer layers harden, locking in the metabolic products accumulated during the formation period. This biological process provides a blueprint and lasting record of mineral status and nutritional and metabolic activity during this time.

The precise analytical method of determining the levels of minerals in the hair is a highly sophisticated technique. However, when performed to exacting standards and interpreted correctly, it may be used as a screening aid for determining mineral deficiencies, excesses, and imbalances. HTMA provides you and your health care professional with an economical and sensitive indicator of the long-term effects of diet, stress, toxic metal exposure, and their impact on your mineral balance, which is difficult to obtain through other clinical tests.

It is important for the attending healthcare professional to determine your mineral status as minerals are absolutely critical for life and abundant health. They are involved in and are necessary for cellular metabolism, structural support, nerve conduction, muscular activity, immune functions, anti-oxidant and endocrine activity, enzyme functions, water and acid/alkaline balance, and even DNA function.

Many factors can affect mineral nutrition, such as; food preparation, dietary habits, genetic and metabolic disorders, disease, medications, stress, environmental factors, and exposure to heavy metals. Rarely does a single nutrient deficiency exist in a person today. Multiple nutritional imbalances, however, are quite common, contributing to an increased incidence of adverse health conditions. It is estimated that mild and sub-clinical nutritional imbalances are up to ten times more common than nutritional deficiency alone.

The laboratory test results and the following comprehensive report should not be construed as diagnostic. This analysis is provided only as an additional source of information to the attending doctor.

Test results were obtained by a licensed clinical laboratory adhering to analytical procedures that comply with governmental protocol and standards established by Trace Elements, Inc. U.S.A. The interpretive data based upon these results is defined by research conducted by David L. Watts, Ph.D.

UNDERSTANDING THE GRAPHICS

NUTRITIONAL ELEMENTS

This section of the cover page graphically displays the test results for each reported nutritional element and how they compare to the established population reference range. Values above or below the reference range indicate a deviation from "normal." The more significant the variation, the greater the possibility of a deficiency or excess.

TOXIC ELEMENTS

The toxic elements section displays the results for each reported toxic element. It is preferable that all levels be as low as possible and within the lower white section. Any test result that falls within the upper dark red areas should be considered statistically significant but not necessarily clinically significant. Further investigation is then warranted to determine the possibility of actual clinical significance.

ADDITIONAL ELEMENTS

This section displays the results of additional elements for which there is limited documentation. These elements may be necessary for biochemical function and may adversely affect

biochemical function. Further study will help to reveal their role, interrelationships, and eventually their proper therapeutic application or treatment.

SIGNIFICANT RATIOS

The significant ratios section displays the important nutritional mineral relationships. This section consists of calculated values based on the respective elements. Mineral relationships (balance) are as meaningful, if not more so than the individual mineral levels. The ratios reflect the critical balance that must be constantly maintained between the minerals in the body.

TOXIC RATIOS

This section displays the relationships between critical nutritional elements and toxic metals. Each toxic metal ratio result should be in the white area of the graph, and the higher, the better. Toxic ratios that fall within the darker red area may indicate an interference of that toxic metal upon the utilization of the nutritional element.

ADDITIONAL RATIOS

The additional ratios section provides calculated results on some additional mineral relationships. At this time, there is limited research and documentation regarding these ratios.

METABOLIC TYPE

This section of the report will discuss the metabolic profile based on research by Dr. D. L. Watts. Each classification is established by evaluating the tissue mineral results and determining the degree to which the minerals may be associated with a stimulating and/or inhibiting effect upon the main "energy-producing" endocrine glands. These glands regulate nutrient absorption, excretion, metabolic utilization, and incorporation into the body's tissues: the skin, organs, bone, hair, and nails. How efficiently each nutrient is utilized depends mainly upon the proper functioning of the endocrine glands.

SLOW METABOLISM (TYPE #2)

- ** Para-Sympathetic Dominance
- ** Tendency Toward Increased Adrenal Activity (increased secretion of hormones)
- ** Tendency Toward Decreased Thyroid Function (decreased secretion of hormones)

The current mineral pattern is indicative of a slow metabolic rate (Slow Metabolism, Type #2). This classification is associated with an acute stress reaction, either physical or emotional. Acute stress is usually associated with an alarm reaction. If the stress is emotional in nature, it could be related to feelings of fear. Physical stress could be related to an inflammatory response or viral condition. In either circumstance, an adrenal response is noted.

If this pattern has been present over a long period of time, this patient may experience fluctuations in energy levels as well as mood swings. The energy that is produced by the adrenal gland cannot be sustained over long periods due to reduced thyroid function. Therefore, stress contributing to temporary energy production will result in higher energy levels followed by periods of fatigue.

NUTRIENT MINERAL LEVELS AND OTHER ELEMENTS

This section of the report may discuss those nutritional mineral levels that reveal moderate or significant deviations from normal. The light blue and light green areas of each graph section represent the reference interval for each element based on a statistical analysis of apparently healthy individuals. The following section, however, is based upon clinical data; therefore, an element that is moderately outside the reference interval may not be commented on unless determined to be

clinically significant.

NOTE:

For those elements whose levels are within the normal range, it should be noted that nutritional status is also dependent upon their critical balance with other essential nutrients. Therefore, if applicable, a discussion regarding their involvement in metabolism may be found in this report's ratio section(s).

NUTRIENT MINERAL RATIOS

This section of the report will discuss those nutritional mineral ratios that reveal moderate or significant deviation from normal.

Continuing research indicates that metabolic dysfunction occurs not necessarily as a result of a deficiency or excess of a particular mineral level but more frequently from an abnormal balance (ratio) between the minerals. Due to this complex interrelationship between the minerals, it is extremely important that imbalances be determined. Once these imbalances are identified, corrective therapy may then be used to help re-establish a more normal biochemical balance.

NOTE: The "Nutritional Graphic" developed by researchers at Trace Elements, and presented on the cover of this report shows the antagonistic relationships between the significant nutrients, including the elements (arrows indicate antagonistic effect upon absorption and retention).

HIGH SODIUM/POTASSIUM (Na/K) RATIO

An excess of sodium relative to potassium can increase the requirements for potassium (see high Na/K ratio). Excess sodium relative to potassium can result in water retention and periodic weight gain. A potassium deficiency of this type, both a low level and low relative to other specific minerals (ratios), can be a result of inadequate intake or decreased retention.

HIGH CALCIUM/POTASSIUM (Ca/K) AND HYPOTHYROIDISM

High calcium relative to potassium will frequently indicate a trend toward hypothyroidism (underactive thyroid). The mineral calcium antagonizes the retention of potassium within the cell. Since potassium is necessary for sufficient quantity to sensitize the tissues to the effects of thyroid hormones, a high Ca/K ratio would suggest reduced thyroid function and/or cellular response to thyroxine. If this imbalance has been present for an extended period of time, the following symptoms associated with low thyroid function may occur.

Fatigue	Depression
Dry Skin	Over-weight Tendencies
Constipation	Cold Sensitivity

HIGH CALCIUM/MAGNESIUM (Ca/Mg) RATIO

Calcium and magnesium should always be in a proper balance with one another. If this normal equilibrium is upset, one mineral will become dominant relative to the other. In this case, calcium is high relative to magnesium (see high Ca/Mg ratio), which may indicate abnormal calcium metabolism. Even though the magnesium level is not low at this time, excess calcium relative to magnesium will suppress magnesium function within the body.

MINERAL METABOLISM AND VITAMIN B6

A deficiency of or increased requirement for vitamin B6 (pyridoxine) leads to alterations in the metabolism, utilization, and balance between calcium and magnesium. Calcium retention will increase, and the excretion of magnesium will also increase when vitamin B6 is lacking. Therefore, an increased need for vitamin B6 may be indicated by your current HTMA pattern.

TOXIC METAL LEVELS

ALL CURRENT TOXIC METAL LEVELS ARE WITHIN THE ACCEPTABLE RANGE

TOXIC METAL RATIOS

ALL CURRENT TOXIC METAL RATIOS ARE WITHIN THE ACCEPTABLE RANGE

DIETARY SUGGESTIONS

The following dietary suggestions are defined by several factors: the individual's mineral levels, ratios, and metabolic type, as well as the nutrient value of each food, including protein, carbohydrate, fat, and vitamin and mineral content. Based upon these determinations, it may be suggested that foods be avoided or increased temporarily to improve your biochemistry.

SLOW METABOLISM

Dietary habits may contribute to slow metabolism. For example, low protein, high carbohydrate, high fat intake, and the consumption of refined sugars and dairy products have an excessive slowing-down effect on metabolism and energy production.

GENERAL DIETARY GUIDELINES FOR THE SLOW METABOLIZER

- * **EAT A HIGH-PROTEIN FOOD AT EACH MEAL...**Lean protein is recommended and which should constitute at least 40% of the total caloric value of each meal. Recommended sources are fish, fowl, and lean beef. Other good sources of protein include bean and grain combinations and eggs. Increased protein intake is necessary to increase metabolic rate and energy production.
- * **INCREASE FREQUENCY OF MEALS...**while decreasing the total caloric intake for each meal. This is suggested to sustain the level of nutrients necessary for energy production and reduce blood sugar fluctuations.
- * **EAT A MODERATE AMOUNT OF UNREFINED CARBOHYDRATES...**Carbohydrate intake should be at most 40% of total daily caloric intake. Excellent sources of unrefined carbohydrates include whole grain products, legumes, and root vegetables.
- * **AVOID ALL SUGARS AND REFINED CARBOHYDRATES...** This includes white and brown sugar, honey, candy, soda pop, cake, pastries, alcohol, and white bread.
- * **AVOID HIGH PURINE PROTEIN...**Sources of high purine protein include liver, kidney, heart, sardines, mackerel, and salmon.
- * **REDUCE OR AVOID MILK AND MILK PRODUCTS...**Due to high fat content and high levels of calcium, milk and milk products, including "low-fat" milk, should be reduced to no more than once every three to four days.
- * **REDUCE INTAKE OF FATS AND OILS...**Fats and oil include fried foods, cream, butter, salad dressings, mayonnaise, etc... Fat intake should not exceed 20% of the total daily caloric intake.
- * **REDUCE FRUIT JUICE INTAKE...**until the next evaluation. This includes orange juice, apple juice, grape juice, and grapefruit juice. Note: Vegetable juices are acceptable.

* AVOID CALCIUM AND VITAMIN D SUPPLEMENTS...unless recommended by a healthcare professional.

SPECIAL NOTE:

This report contains only a limited number of foods to avoid or increase the diet. FOR THOSE FOODS NOT SPECIFICALLY INCLUDED IN THIS SECTION, CONTINUED CONSUMPTION ON A MODERATE BASIS IS ACCEPTABLE UNLESS RECOMMENDED OTHERWISE BY THE ATTENDING HEALTHCARE PROFESSIONAL. Under some circumstances, dietary recommendations may list the same food item in the "TO EAT" and the "TO AVOID" categories simultaneously. In these rare cases, always follow the avoid recommendation.

CONCLUSION

This report can provide a unique insight into nutritional biochemistry. The recommendations contained within are specifically designed according to metabolic type, mineral status, age, and sex. Additional recommendations may be based on other supporting clinical data as determined by the attending healthcare professional.

OBJECTIVE OF THE PROGRAM:

This program aims to re-establish a normal balance of body chemistry through individually designed dietary and supplement suggestions. Properly followed, this may then enhance the ability of the body to more efficiently utilize the nutrients that are consumed, resulting in improved energy production and health.

WHAT TO EXPECT DURING THE PROGRAM:

The mobilization and elimination of certain metals may cause temporary discomfort. For example, if an excess accumulation of iron or lead is contributing to arthritis, a temporary flare-up of the condition may occur from time to time. This discomfort can be expected until the removal of the excess metal is complete.

NO PART OF THIS INTERPRETIVE REPORT MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR ANY INFORMATION STORAGE OR RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM TRACE ELEMENTS, INC., U.S.A.

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