

O'KEEFE MATZ CHIROPRACTIC CLINIC

1053 Ashland Ave. St.Paul, MN 55104

Email: dr.okeefe@improveurhealth.com Phone: (651) 292-8722 Fax: (651) 292-8722

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**NUTRITIONAL EVALUATION**

PATIENT: Anne S Onymous  
ADDRESS: 1234 Healthy Way  
CITY: Somewhere  
STATE: OH 12345  
PHONE: (555) 555-5555

PATIENT #: 12346  
DATE OF ANALYSIS: 05/09/2008  
SEX: F  
AGE: 40  
BLOOD TYPE: AB

**Tests Used for Analysis:**

Blood	5/10/07
Stool	3/18/07
Urinalysis	3/18/07
Vitals	3/18/07
Medication	3/18/07
Hair	3/18/07
PSS	8/27/07

**Vitals:**

Height: 5'6"  
Weight: 154  
Blood Pressure: 140 / 92  
O2 Level: 96%  
Heart Rate: 76

**Comments:**

**Patient Symptom Survey.**

**Patient's comments:**

My concerns are fatigue and hair loss.

This analysis and the recommendations are not for the purpose of treating or curing disease (cancer, hepatitis, arthritis, diabetes, M.S., heart disease, etc). The purpose for this nutrition and lifestyle program is to create an optimum environment in which your body can heal and repair itself. This is achieved by eliminating foods and toxins, which adversely affect the body, and by providing nutrients that the body may be lacking.

**Primary Findings Suggestive of:**

Hyperlipidemia; Gastro/Intestinal dysfunction; Noted Blood Values; Very Low Hair Chromium; Noted Hair Values

**Medications:**

Glucophage - 6 months - 2 years.; Hydrochlorothiazide - More than 2 years.; Lipitor - More than 2 years.; Prozac - Less than 6 months.

**Side Effects of Medications:**

Glucophage (for diabetics) diarrhea; nausea; vomiting; abdominal bloating; flatulence; anorexia; unpleasant or metallic taste; rash

Nutrients Depleted: Folic Acid, Vitamin B12

**Hydrochlorothiazide**

Uses: Hydrochlorothiazide is a "water pill" (diuretic) that increases the amount of urine you make, which causes your body to get rid of excess water. This drug is used to treat high blood pressure. Lowering high blood pressure helps prevent strokes, heart attacks, and kidney problems. This medication also reduces swelling / fluid retention (edema) which can result from conditions such as congestive heart failure, liver disease, or kidney disease. This can help to improve symptoms such as trouble breathing.

Additional Uses: This medication may also be used for a condition known as "water diabetes" (diabetes insipidus) and to help prevent calcium kidney stones.

Side Effects: Dizziness, lightheadedness, headache, blurred vision, loss of appetite, stomach upset, diarrhea, or constipation may occur as your body adjusts to the medication. If any of these effects persist or worsen, notify your doctor or pharmacist promptly. This medication may lead to excessive loss of body water and minerals (including potassium). Tell your doctor immediately if you have any of these unlikely but serious symptoms of dehydration or mineral loss: muscle cramps or weakness, confusion, severe dizziness, unusual dry mouth or thirst, nausea or vomiting, fast/irregular heartbeat, unusual decrease in the amount of urine, fainting, seizures. Tell your doctor immediately if any of these unlikely but serious side effects occur: numbness/tingling of the arms/legs, decreased sexual ability. Tell your doctor immediately if any of these highly unlikely but very serious side effects occur: persistent sore throat or fever, easy bleeding or bruising, stomach/abdominal pain, persistent nausea/vomiting, yellowing of eyes/skin.

A serious allergic reaction to this drug is unlikely, but one should seek immediate medical attention if it occurs. Symptoms of a serious allergic reaction include: rash, itching, swelling, severe dizziness, trouble breathing.

Nutrients Depleted: Coenzyme Q10, Magnesium, Phosphorous, Potassium, Sodium, and Zinc.

Lipitor (lipid or cholesterol lowering drug) causes liver dysfunction; SGOT and SGPT three times the upper limit of normal is considered normal; CPK values greater than 10 times the normal limit is considered normal. Adrenal failure, diffused muscle pain; muscle tenderness; weakness; malaise; fever; myopathy or muscle disease if used with certain other drugs (these drugs include: antacid (maylox), dioxin, erythromycin, and oral contraceptives). Long term use in laboratory studies of two years indicated an increase in liver cancer. Should not be used in pregnant women. Other adverse reactions include: edema (part or whole of the body), digestive problems, gastritis, colitis, vomiting, ulcers, bleeding gums, bleeding ulcers, hepatitis, pancreatitis, gall bladder disease, asthma, decreased libido, leg cramps, verticis, monocytis, itching, alopecia, dry skin, acne, cystitis, hemoteria, kidney stone, breast tenderness, various hemorrhage, loss of taste, palpitations, migraines, arrhythmia, gout

Nutrients Depleted: Co-Enzyme Q-10

Prozac:[Sarafem] (used for depression) autonomic instability; extreme agitation; delirium; rash and itching; fever; arthritis; edema; lymph adenopathy; proteinuria; elevated liver enzymes; possible lung, kidney, or liver involvement; anxiety; nervousness; insomnia; fatigue; tremors; sweating; gastrointestinal complaints; anorexia; dizziness; light headedness; dry mouth.

Nutrients Depleted: unknown at this time

### **Interpreting Blood Lab Results**

On the right hand side of your blood test results found later in this report, you'll see there is a Healthy Range and a Clinical Range. This Healthy Range is a more narrow range than the Clinical Range. Any test value outside of the Healthy Range indicates that it is not as good as it should be or it may be a sign of a developing condition that isn't bad enough to need medical treatment at this point. These test values that are outside of the Healthy Range are highlighted in yellow. The Clinical Range is a much broader range and is what the medical community uses. Any test value outside of the Clinical Range indicates a disease process. Test values "low" or "high" outside of the Clinical Range are highlighted in red. Test values that are "very low" or "very high" outside of the Clinical Range are highlighted in blue.

### **Interpreting Hair Lab Results**

The measurement of hair element levels is a screening test for physiological excess, deficiency, or maldistribution. Hair element analysis is not a diagnostic test of element function, and hair element levels (either high or low) are not always indicative of pathology. This is **because hair levels of some elements can be influenced by many factors such as shampoo, swimming pool and spa water, and hair treatments.**

Because of pollution, industry, and other environmental factors, there is no way you can totally eliminate your exposure to some of these toxic elements. However, there are things we can do daily to limit or reduce our exposure to these toxic elements and therefore lessening the total toxic burden on your body.

**For each elevated toxic element the most common sources of exposure are highlighted.**

### **Coronary Risk Assessment**

Total Cholesterol:	222	
HDL Cholesterol:	59	
LDL Cholesterol:	139	
VLDL Cholesterol:	24	
Coronary Risk Assessment:	3.76	Average

The coronary risk is determined by taking the total cholesterol and dividing it by the HDL. To reduce your risk of cardiovascular problems a value below 4 is recommended. The Total Cholesterol is determined by adding the HDL, LDL, and VLDL together. Recent studies have shown a correlation between a high HDL and longevity. Think of HDL as the Healthy cholesterol and generally the higher the better. LDL is the bad cholesterol, as it tends to plug the arteries. The VLDL is the Very worst cholesterol and is more like sludge. Lower is better for the LDL and VLDL in determining coronary risk and overall health.

### **Hyperlipidemia**

Hyperlipidemia is basically too much fat in the blood. The Cholesterol and LDL Cholesterol are high and the Triglycerides, HDL Cholesterol and VLDL Cholesterol are a little high. Poor diet, excess weight, caffeine intake and lack of exercise are usually the main cause for these findings.

**Nutrients:** Chromium Picolinate; MLK 1000

### **Gastro/Intestinal dysfunction**

The Blood Urea Nitrogen (BUN), BUN/Creatinine Ratio and Globulin are a little low and the A/G Ratio is a little high. This is probably poor digestion and digestion problems and/or a low protein/high carbohydrate diet. A tendency for edema and fluid retention is increased. Many drugs or medications can cause or contribute toward these findings. Digestive enzymes may be of benefit. Globulin, a type of protein, is important for the immune system and to fight disease. One out of every four bites of food you eat (25%) should be of a protein source, preferably more plant based protein such as seeds, nuts, beans and sprouts. Eggs and even some fish, chicken, turkey and possibly small amounts of red meat may be beneficial.

This finding is associated with:

Medications Taken - Glucophage; Lipitor; Prozac; Hydrochlorothiazide

**Nutrients:** Betaine HCL

### **Noted Blood Values**

The LDH is a little high and this is associated with destruction of cells. This doesn't tell where or how, only that too much destruction is occurring. The body is continually breaking down and rebuilding. The problem is when the breakdown is too much or the body isn't repairing quickly enough.

The Basophils are a little high and probably indicate a mild inflammatory reaction.

The Triglyceride/HDL Cholesterol Ratio is optimal. Recent studies have shown that the ratio of triglycerides to HDL was the strongest predictor of a heart attack. High triglycerides with low HDL levels increase levels of clotting factors in the bloodstream, which is unhealthy in protecting against heart disease. In adults, the triglyceride/HDL ratio should be below 2.

### **Very Low Hair Chromium**

The Hair Chromium is very low. Chromium is very important in carbohydrate and glucose metabolism and in the mechanism of insulin action. Basically, this mineral is very important for hypoglycemics and diabetics. Depletion can result in reduced metabolism of amino acids, glucose and lipid metabolism. It is also associated with protein malnutrition, elevated cholesterol levels, atherosclerosis and corneal damage.

**Nutrients:** Spectramin Chelate

### **Noted Hair Values**

#### **HIGH MAGNESIUM**

The magnesium levels in the Hair are high. High levels of magnesium in the hair has been associated with hypoglycemia, maldistribution, renal failure, prolonged emotional or physical stress, depression of the central

nervous system, and physiological imbalance of calcium and phosphorus. Symptoms include chronic kidney disease, respiratory depression, cardiac arrest, and coma.

## HIGH ALUMINUM

The Aluminum value is a little high. Any Aluminum is too much. Aluminum toxicity is associated with Alzheimer's and Parkinson's disease, behavioral/learning disorders such as ADD, ADHD and autism. High levels of aluminum have been found in the hair of delinquent, psychotic, and prepsychotic boys, and in juvenile offenders. Aluminum has neurotoxic effects at high levels, but low levels of accumulation may not elicit immediate symptoms. Early symptoms of Aluminum burden may include fatigue, headache, and other symptoms. Aluminum is a heavy metal that displaces your other good minerals, such as magnesium, calcium, zinc and phosphorus. One of the things that you should do to help your overall long-term health is to reduce your aluminum intake. The **most common sources of aluminum to avoid are:**

**antiperspirants, aluminum cookware, antacids, some baking sodas, baking powder, some breath mints, pickles, some skin lotion, some cosmetics, aluminum foil, canned goods, emulsifiers in some processed cheese, table salt - anti-caking compound, bleaching agent used in white flour, buffered aspirin, some toothpaste, dental amalgams, cigarette filters, and drinking water (tap water). Do not eat or drink anything that comes in a can. Read your labels before you purchase. Aluminum has also been found in a granola bar.**

Aluminum rods are commonly used in hot water tanks in area of acidic water. These rods will dissolve neutralizing the water, thus protecting the hot water tank. A rod of magnesium is an option for the same purpose.

Note: Fluoride and Fluoridation increases the absorption of Aluminum.

Chlorella and Magnesium with Malic Acid have been reported to be quite effective in lowering Aluminum.

## HIGH POTASSIUM

The Potassium is a little high and is not necessarily reflective of dietary intake or nutrient status. However, elevated Potassium may indicate adrenocortical insufficiency or it may be reflective of metabolic disorders associated with exposure to potentially toxic elements and toxic heavy metals. Elevated Potassium may reflect overall retention by the body or maldistribution of this element. Hair is occasionally contaminated with Potassium from shampoos.

**Nutrients:** Calcium MCHC; Chlorella; Mag-Malate; Multiple; Spectramin Chelate

To help get these heavy metals out of your system, which is very important, Chlorella is recommended. Magnesium and selenium, are both very important in getting these toxic metals through the kidneys. Chlorella and cilantro have the unique ability to actually get these heavy metals out of brain, liver, heart, and lung tissue. Adding fresh cilantro to the diet is also recommended. Cilantro is an herb that can be found in most supermarkets. Chop it up and add it to salads, sauces, etc. Since we are constantly being exposed to heavy metals in our society, it is recommend that even after you are feeling better that you continue with the

Chlorella.

### **Lifestyle / Dietary Recommendations:**

Below is a list of foods and items that we strongly recommend you avoid. **READ YOUR INGREDIENT LABELS!!** Later in the report, you will find exchanges for these foods and helpful hints on implementing these new lifestyle habits.

1. Artificial Sweeteners: aspartame, saccharin, sucralose, xylitol, sorbitol, malitol, etc.
2. Processed Meats: "nitrate" or "nitrite" foods: pork products; bologna; wieners; any luncheon meat with additives or preservatives
3. MSG (monosodium glutamate): found in many dressings, sauces and Chinese foods. HVP (hydrolyzed vegetable protein) can contain up to 40% MSG.
4. All Canned Foods and Drinks
5. Microwave Cooking
6. Fried Foods: deep fried, breaded foods
7. Artificial Fats: "hydrogenated" fats [a.k.a. "trans fat"] are found in margarine, most pre-packaged foods and dressings; "interesterified" fats; "Olestra" products, etc.
8. Refined Carbohydrates: processed foods such as white sugar, white flour, "unbleached or unbrominated" foods, corn syrup, "enriched" foods, etc..
9. Preservatives, additives, sulfites, artificial colors, FD&C colors and dyes
10. Commercial Meats: Try to get the cleanest, freshest meat you can find. Look for meat that is labeled with terms such as "No Hormones", "No Steroids", "No Antibiotics", etc.
11. Shellfish and Bottom-dwellers: crab, shrimp, lobster, oyster, catfish, etc.
12. Dairy Products: cottage cheese, yogurt, cheese, butter, sour cream, etc. (anything with cow's milk). This does not include eggs.
13. Coffee (regular & chemically decaffeinated), Liquor (distilled), All sodas, Tea (black decaf & black regular)
14. Soy Products: isolated soy protein, texturized vegetable protein, soy supplements, soy protein powder, soy protein bars, tofu, etc. Limited fermented soy products (tempeh and miso) and whole soy beans are acceptable. Don't make soy your main protein source, limit to 3-4 servings per week.
15. Chlorine and Fluoride Sources: tap water, heavy chlorine exposure in swimming pools, fluoride toothpaste, fluoride supplements, fluoride mouthwash, etc.

**Aerobic Exercise** [i.e. jogging, cycling, fast-paced walking, etc]: It is recommended that you build up to at least 40 minutes a day. If at first you do not have the energy to exercise this much, it is recommended that you start slowly by exercising 10 minutes two or three times a day until you can gradually build up to 40 minutes a day.

**Strength Training:** If you are not currently on a weight training program, a muscle building exercise (i.e. step exercise) 10 minutes a day is encouraged. If at first you do not have the energy or physical ability to perform this exercise, it is recommended that you start slowly by setting a goal to do this exercise 2 minutes two or three times a day until you can gradually build up to 10 minutes a day.

**Water Consumption:** Drink 1 quart of clean, filtered water per 50lbs of body weight per day. We recommend using "reverse osmosis" filtration for your drinking and cooking water. Reverse Osmosis is a type of filtration that gets the water the cleanest that technology has to offer without robbing the water of all essential minerals. Distilled water is not recommended. Since distilled water has little or no mineral content,

it acts like a vacuum that can actually leach minerals from your system. If you are already mineral deficient, it will worsen the problem. Cooking foods in distilled water will pull the minerals from the food and lowers the nutrient value.

A word of caution - **anytime you make drastic changes in diet, vitamin intake, or exercise, realize that you may feel somewhat worse before you feel better.** It doesn't happen often, but as your body detoxifies, you may feel worse if it occurs too fast. If you do feel worse, don't panic, it will pass in probably 2-3 days. If this problem does occur, take half of what is recommended for three days and slowly over two weeks progress to taking the complete program.

Everything that has been recommended is very important and many of these things work together. In order to get the most effective results, it is important that you follow the program exactly as outlined. Following the diet may not be easy, but if you do, you will get the best outcome. Likewise, if you don't take the vitamins, or only take part of them, you may not see the expected results. Many people with some very serious problems have been helped using this program. The purpose of this analysis is to benefit you. This is for your well being, so please do the program as recommended so that you will achieve the best results.

Attached is a list of vitamins that have been carefully selected for your specific problems. These vitamins are recommended because they are of the highest quality. Occasionally, you will hear rumors regarding vitamin toxicity. Rest assured that these issues have been researched and the risk of significant side effects is extremely low. Historical data and experience have shown these vitamins, along with the dietary changes, to be the best in helping you achieve the necessary improvements needed on your test results. If for some reason you need to return the supplements, please contact our front desk for our returns policy.

Please keep this report for future reference and bring it with you to your next evaluation. We will be happy to provide you with an extra copy or fax/send your report to any other doctors at your request for \$20.00 per copy or fax.

If we can be of any further assistance to you or your family please do not hesitate to ask.

**Yours in Health,**

**Dr. Shannon A. O'Keefe, DC, CCN**

## VITAMIN AND SUPPLEMENT RECOMMENDATIONS

PATIENT: Anne S Onymous

SEX: F                      AGE: 40                      WEIGHT: 154

<b><u>Supplement</u></b>	<b><u>Number</u></b>
Betaine HCL	1
Calcium MCHC	3
Chlorella	2
Chromium Picolinate	1
Mag-Malate	2
MLK 1000	2
Multiple	2
Spectramin Chelate	2

Test Description	Date:	Current Result	Current Rating	Prior Result	Delta	Healthy		Clinical		Units
		05/10/2007		03/18/2007						
Glucose		94.00	Opt	122.00	J	80.00	- 95.00	65.00	- 99.00	ma/dL
Hemoglobin A1C (Gly-Hgh)		5.40	Opt	5.90	J	4.60	- 5.40	4.80	- 5.90	%
Uric Acid		4.80	Opt	6.10	J	4.10	- 6.00	2.40	- 8.20	ma/dL
BUN (Blood Urea Nitrogen)		9.00	lo	17.00	L	13.00	- 18.00	5.00	- 26.00	ma/dL
Creatinine		0.80	Opt	0.90		0.61	- 0.90	0.50	- 1.50	ma/dL
BUN / Creatinine Ratio		11.00	lo	13.30	L	13.00	- 20.00	8.00	- 27.00	ratio
Sodium		141.00	Opt	142.00		139.00	- 143.00	135.00	- 145.00	meq/dL
Potassium		4.30	Opt	3.80	J	3.80	- 4.50	3.50	- 5.20	meq/dL
Chloride		103.00	Opt	105.00		102.00	- 106.00	97.00	- 108.00	meq/dL
Magnesium		2.40	Opt	2.20	J	2.21	- 2.51	1.60	- 2.60	ma/dL
Calcium		9.90	Opt	10.02	J	9.70	- 10.00	8.50	- 10.60	ma/dL
Phosphorus		3.50	Opt	4.10	J	3.40	- 4.00	2.50	- 4.50	ma/dL
Calcium/Albumin Ratio		2.28	Opt	2.25		2.10	- 2.50	2.03	- 2.71	ratio
Total Protein		7.20	Opt	7.20		7.11	- 7.61	6.00	- 8.50	gm/dL
Albumin		4.20	Opt	4.40		4.10	- 4.50	3.60	- 4.80	gm/dL
Globulin		2.50	lo	3.20	L	2.81	- 3.51	1.50	- 4.50	gm/dL
A/G Ratio		1.70	hi	1.40	L	1.22	- 1.60	1.10	- 2.50	ratio
Total Bilirubin		0.50	Opt	0.70		0.39	- 0.93	0.10	- 1.20	ma/dL
Alkaline Phosphatase 25-150		78.00	Opt	74.00		65.00	- 108.00	25.00	- 160.00	IU/L
Creatine Kinase		100.00	Opt	100.00		64.00	- 133.00	24.00	- 173.00	u/l
LDH		210.00	hi	125.00	L	120.00	- 160.00	100.00	- 250.00	mu/mL
SGOT (AST) (AST)		21.00	Opt	22.00		15.00	- 26.00	6.00	- 40.00	mu/mL
SGPT (ALT) (ALT)		16.00	Opt	21.00		15.00	- 26.00	6.00	- 55.00	mu/mL
GGT		23.00	Opt	32.00		22.00	- 39.00	6.00	- 65.00	mu/mL
Serum Iron		89.00	Opt	92.00		85.00	- 120.00	40.00	- 155.00	mca/dL
Ferritin		44.00	Opt	41.00		30.00	- 218.00	22.00	- 322.00	NG/ML
Total Cholesterol		222.00	HI	235.00	J	140.00	- 170.00	100.00	- 199.00	ma/dL
Triglyceride		118.00	hi	123.00	J	80.00	- 115.00	10.00	- 149.00	ma/dL
HDL Cholesterol		59.00	hi	69.00	J	50.00	- 55.00	40.00	- 59.00	ma/dL
VLDL Cholesterol		24.00	hi	24.00	K	5.00	- 20.00	4.00	- 40.00	ma/dL
LDL Cholesterol		139.00	HI	142.00	J	50.00	- 75.00	6.00	- 99.00	ma/dL
Total Cholesterol / HDL Ratio		3.80	Opt	3.40		0.00	- 4.00	0.00	- 5.00	ratio
Triglyceride/HDL Ratio		2.00	Opt	1.78		1.00	- 2.20	0.50	- 4.00	ratio
T4 Thyroxine		7.60	Opt	6.60	J	7.10	- 9.00	4.50	- 12.00	mca/dL
T3 Uptake		32.00	Opt	33.00		29.00	- 35.00	24.00	- 39.00	%
T7 Free Thyroxine Index (FTI)		3.20	Opt	2.10	J	2.61	- 3.60	1.20	- 4.90	
CRP C-Reactive Protein		1.20	Opt	4.10	J	0.00	- 1.50	0.00	- 4.90	ma/L
White Blood Count		7.90	Opt	6.90		5.00	- 8.00	4.00	- 10.50	k/cumm
Red Blood Count		4.54	Opt	4.68		4.50	- 5.50	4.10	- 5.60	m/cum
Hemoglobin		14.20	Opt	14.50		13.30	- 15.20	11.50	- 17.00	am/dL
Hematocrit		42.00	Opt	43.40		39.50	- 47.00	34.00	- 50.00	%
MCV		92.00	Opt	93.00		85.00	- 97.00	80.00	- 98.00	cu.m
MCH		31.30	Opt	30.90		28.10	- 32.00	27.00	- 34.00	pa
MCHC		33.90	Opt	33.40		33.00	- 34.00	32.00	- 36.00	%
Platelets		250.00	Opt	243.00		175.00	- 250.00	140.00	- 415.00	k/cumm
Polys/Neutrophils (SEGS-PMNS)		61.00	Opt	61.00		55.00	- 65.00	40.00	- 74.00	%
Lymphocytes		30.00	Opt	28.00		25.00	- 40.00	14.00	- 46.00	%
Monocytes		7.00	Opt	6.00		5.00	- 7.00	4.00	- 13.00	%
Eosinophils		1.00	Opt	2.00		0.00	- 4.10	0.00	- 7.00	%
Basophils		1.00	hi	1.00	K	0.00	- 0.00	0.00	- 3.00	%
ESR-Erythrocyte Sed Rate, Westerg		5.00	Opt	2.00		0.00	- 6.00	0.00	- 20.00	mm/HR

Test Description	Date:	Current Result	Current Rating	Prior Result	Delta	Healthy	Clinical	Units
<b>Toxic Elements</b>								
Aluminum	03/18/2007	4.00	hi			0- 2.20	2.21- 7.00	ug/g
Antimony		0.01	Opt			0- 0.04	0.05- 0.07	ug/g
Arsenic		0.01	Opt			0- 0.03	0.04- 0.06	ug/g
Beryllium		0.01	Opt			0- 0.01	0.02- 0.02	ug/g
Bismuth		0.07	Opt			0- 1.00	1.01- 2.00	ug/g
Cadmium		0.03	Opt			0- 0.05	0.06- 0.10	ug/g
Lead		0.19	Opt			0- 0.20	0.21- 1.00	ug/g
Mercury		0.37	Opt			0- 0.50	0.51- 1.10	ug/g
Platinum		0.00	Opt			0- 0.00	0.01- 0.00	ug/g
Thallium		0.00	Opt			0- 0.00	0.01- 0.01	ug/g
Thorium		0.00	Opt			0- 0.00	0.01- 0.00	ug/g
Uranium		0.02	Opt			0- 0.03	0.04- 0.06	ug/g
Nickel		0.13	Opt			0- 0.20	0.21- 0.40	ug/g
Silver		0.04	Opt			0- 0.08	0.09- 0.15	ug/g
Tin		0.07	Opt			0- 0.15	0.16- 0.30	ug/g
Titanium		0.42	Opt			0- 0.50	0.51- 1.00	ug/g
Total Toxic Representation		2.00	Opt			0- 2.00	2.01- 3.00	
<b>Essential Elements</b>								
Calcium		576.00	lo			663.00- 753.00	300.00- 1200.00	ug/g
Magnesium		150.00	HI			53.00- 62.00	35.00- 140.00	ug/g
Sodium		65.00	hi			37.00- 45.00	12.00- 90.00	ug/g
Potassium		22.00	hi			14.00- 18.00	8.00- 38.00	ug/g
Copper		21.00	hi			10.00- 15.00	9.00- 24.00	ug/g
Zinc		150.00	Opt			140.00- 160.00	130.00- 200.00	ug/g
Manganese		0.28	Opt			0.21- 0.32	0.15- 0.65	ug/g
Chromium		0.03	LO			0.25- 0.31	0.20- 0.40	ug/g
Vanadium		0.04	Opt			0.04- 0.05	0.02- 0.06	ug/g
Molybdenum		0.04	lo			0.05- 0.05	0.04- 0.10	ug/g
Boron		1.10	Opt			0.10- 2.00	0.70- 4.00	ug/g
Iodine		0.33	Opt			0.32- 0.55	0.25- 1.30	ug/g
Lithium		0.01	Opt			0.01- 0.01	0.01- 0.02	ug/g
Phosphorus		221.00	hi			185.00- 200.00	160.00- 250.00	ug/g
Selenium		1.20	Opt			1.10- 1.45	0.95- 1.70	ug/g
Strontium		6.30	hi			2.00- 2.90	0.50- 7.60	ug/g
Sulfur		45100.00	Opt			45000.00- 45500.00	43000.00- 50000.00	ug/g
Barium		0.82	Opt			0.70- 1.20	0.50- 5.00	ug/g
Cobalt		0.02	Opt			0.02- 0.03	0.01- 0.05	ug/g
Iron		8.10	Opt			6.80- 8.50	5.40- 14.00	ug/g
Germanium		0.05	Opt			0.05- 0.05	0.05- 0.06	ug/g
Rubidium		0.07	hi			0.02- 0.03	0.01- 0.10	ug/g
Zirconium		0.36	hi			0.07- 0.25	0.02- 0.42	ug/g