EKOTEK™ TECHNOLOGIES

A REGIONAL PROGRAM FOR WASTE CONVERSION

All Natural BIO-Technologies
For Waste Conversion, Agriculture,
Environmental Reclamation and Alternative Fuels

A Regional Program for Waste Conversion
offering a broad spectrum of benefits

EkoTec™ Technologies has a program that will convert problematic waste streams into products for a variety of beneficial uses. Government jurisdictions, agencies and municipalities within a region can cooperate to gain several economies of scale while solving mutual problems surrounding waste disposal.

Ekotek™ offers a "Cost Sharing", centralized, regional waste conversion program that benefits all participating communities and business entities within a region. Savings for this cooperative approach are realized in areas of: investment capital needed to stay compliant with increasing government regulations; equipment; operations & maintenance; transportation; and human resources.

EkoTek™ BioTechnology is a proven technology for solid waste treatment that has been in use throughout North America and Europe for decades. A seventh generation of advanced technology has been refined that offers far-reaching benefits to a broad spectrum of publics. Aspects of the overall program positively impact a number of areas of public concern and may be of interest to several different public and private entities.

Essentially, Ekotek™ offers technology that biologically transmutes waste materials into reusable products for the benefit of several industries and betterment of society in general.

EkoTek collects Municipal bio-solid waste, yard waste and much of land fill wastes and converts them into sophisticated Humus products used to: fertilize soils; grow nutrient-enriched human food and animal crops; generate energy; produce alternative fuels; and add significantly to the job market by creating new industries. At the same time existing program costs are sharply reduced.

Additional resources for the conversion process include; food processing wastes; cooking oils; dairy farm wastes; animal and poultry farm wastes. All of these growing waste stream materials can be collected and transformed into useful products. This includes the removal and destruction of residual contaminates just now becoming of concern such as Pharmaceuticals, Steroids, and Hormones. The broad range of commercial and social benefits far overshadows the relatively low investment costs of a Conversion Plant. The returns on investment are enormous and far-reaching. A regional cost sharing approach to this universal problem makes a total solution more feasible and affordable to its participants.

The advanced EkoTek™ Humus processes goes far beyond ordinary composting. Certain formulae will revitalize fallow soils and with a regimen of fertilization over time, can replenish all 92 minerals and trace elements into the soil. This enriched soil holds moisture better; grows healthier crops that require few chemicals; has longer storage and shelf life; is vastly more nutritious and generally improves the health of the population.

Other useable products from the waste conversion process include bulk and bagged fertilizers for agricultural, home garden, commercial nursery and can be utilized for Public Parks, Recreation, Golf Courses, School Grounds and all publicly maintained green belt areas.

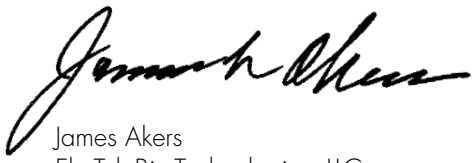
The EkoTek Humus can be granulated for time-release systemic absorption and the waste conversion process yields a refined liquid that can be applied topically on the foliage of certain plants. Offensive odors often associated with composting are captured immediately and all atmospheric toxic emissions are eliminated. Public and private entities can earn carbon credits and become a model to others for a totally natural process of waste conversion.

The intent of this document is to raise awareness and interest for this technology. It can provide a full circle of benefits to governments, municipalities, existing and new industry with sustainable job impact and the general health and well being of the public. A regional cooperative approach allows cost sharing and affordability for each participant.

The issues of waste disposal, water and soil contamination, atmospheric pollution, declining agricultural industries, nutrition, and alternative energy sources are all of growing concern and all may be positively affected by this EkoTek program.

You are invited to contact Jim Akers for more specific and detailed information. We are prepared to provide complete schedules of metrics for costs and return on investment.

Respectfully and sincerely presented by,



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GOVERNMENT REQUESTS FOR PROPOSALS-RFP'S

New Federal and State regulations and mandates are causing diminishing returns for many major cities, small municipalities and County waste treatment plants as well as many other industries, involved in waste disposal.

Basic capital expenditures for established waste disposal facilities are impacted with never ending requirements to upgrade existing facilities. Today's and future capital improvement for waste disposal, require new strategies and new technologies that replace traditional methods of disposal and new technologies that offer long term solutions to out dated disposal methods. These new regulations require certainty in removal of residual toxic materials and productive uses for the waste materials, without added capital intensive solutions.

We respectfully request that future RFPs consider including provisions for preference of new technologies and cost sharing. The value point system used for awarding contracts should have a high percentage number awarded for innovative technologies that lower costs through cost sharing and new technologies.

COST SHARING

Cost sharing is a viable strategy to lower capital costs. Cost sharing requires cooperation among government entities and departments. Public and private entities need to work together regionally for the highest efficiencies to maximize return on investment. Single purpose programs need to be merged together where ever and when ever possible.

Rather than use capital resources for single dedicated processing or remedy for one waste disposal problem at a time, EkoTek™ has developed a program for multiple waste disposals that uses these wastes in a very efficient, positive, valuable and productive way. Today's economic conditions, environmental mandates, US and State government requirements for waste treatment plants improvements, are simply not feasible for small towns or major cities to cope with when it comes to new capital improvement budgets.

EkoTek has a plan for lowering and in some cases eliminating waste treatment plant capital improvements costs. Cost sharing programs offer several options to small towns or major cities. Cost sharing plans offer processes that combine to deliver multiple benefits and extend the productive use of waste conversion.

For example: One basic waste is bio-solid. Individually it could be used for soil enrichment, bio fuel, composting, or direct soil application. Each of these uses would require a separate program for a single disposal program and each single purpose would require its own capital investment. EkoTek offers a multi purpose program that takes several waste streams and combines them into refined, finished products that can replace many of the single purpose programs, thereby making cost sharing a real value.

Bio fuels is an another extended example. EKOTEK Humus can ultimately be used for bio fuel production that produces 6 times the bio fuels as the single use bio fuel programs, in the same amount of acreage. In addition it will produce additional multi-uses beyond what single use bio fuel crops, such as corn or soy bean can. In our example, enhanced bio-solids are refined into special formula Humus and may be used to remediate nuclear contaminated soils on the Hanford Reservation or other reservations in the US.

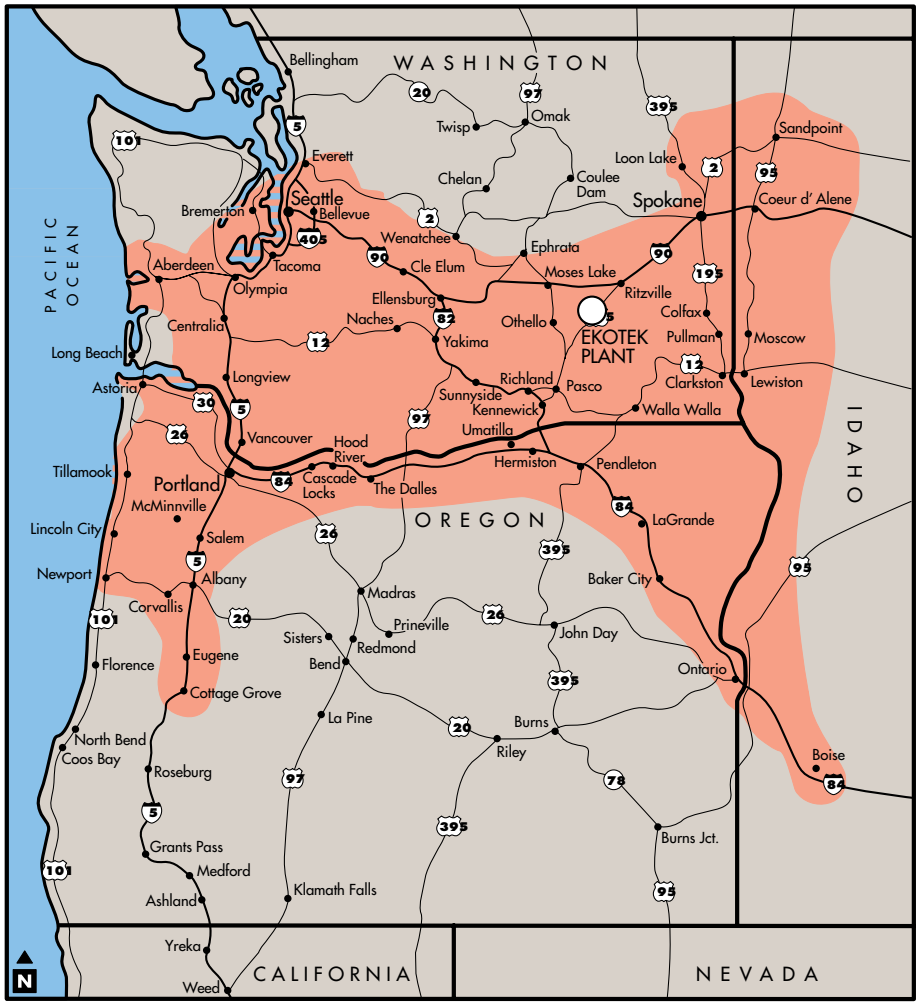
EkoTek then recommends using its cellulose crop technology for a combination crop use for: Bio Fuels, Dairy and Beef Cattle Feed Stocks, Paper Pulp for paper, and Man Made Wood. 20,000 acres produces 20 million gallons of bio fuel, plus 600,000 tons of dairy and animal feed stock, with nutrition equivalent to Alfalfa, plus 600,000 ton of man made wood or paper pulp. The same acreage in corn or soy bean produces 10 million gallons of bio fuel only. Six to one better efficiency is accomplished if all 20,000 acers are used.

The EkoTek strategy makes it possible to share capital investment costs with the Hanford Reservation DOE soil erosion and remediation at the Eastern Washington Nuclear Waste site. Cellulosic crops may be planted and grown in remediated and restored soils, irrigated with recycled water and used to sustain the process while contributing to ROI.

The multiple crop programs can be operated under a lease program in partnership with the regional or local independent farm groups to provide jobs and contribute to the local economy.

EkoTek cost sharing strategies solve growing waste stream problems and utilize converted products to resolve other problems of contamination while restoring fallow soils and even remediating nuclear waste contamination. This technology offers extended use and widely diverse application advantages over single purpose facilities.

EkoTek Regional Service Area



Total population of region served: 11,841,000 (US Book of abstracts - 2002)

- 75% of transportation is by rail
- 25% by pipeline and truck
- Cost of full scale plant **$120 million**, approximately
- 36 different bi-products from conversion processes
- Revenue from full scale operations: **$440 B**
- Jobs created from full scale operations: **105,951**
- Economic impact of full scale operations: **$245 B**

One full-capability Humus & Gasification Plant can service this entire region.

Cost Sharing and political cooperation will provide economies of scale for the benefit of all participants.

Providing savings in areas of...

Capital Investment Funds, reduction of transportation costs, Equipment, Operations, Maintenance and Human Resources.

POOLING RESOURCES
Pooling solves funding road blocks,
Provides diverse efficiencies in waste processing (disposal),
and creates more green jobs

Cost sharing-Resource sharing-Technologies sharing-Central processing facilities sharing-Transportation volumes sharing-Environmental and global warming solution sharing-Jobs creation sharing- All contribute to economy of scale.

Regional and National
Economic issues affected by EkoTek Programs

Infrastructure-Transportation; Rail & Roads- Waste Treatment-Climate Change- Agricultural farming-Dairy wastes & Emissions- Waste Water Treatment- Soil Remediation- Erosion Control-Nutrition-Health Care Costs- US Trade Balance- Energy & Bio Fuels- Water Conservation- Water Recycling-Wetland Restoration- Wetland Development- Environmental Contamination Prevention- Farm and Agricultural Input Reductions- Aquifer & Water Ways Protection- Pharmaceuticals; Hormones; Steroids Residuals Removal- Nuclear Transmutations.

Core aspects of EkoTek a centralized waste conversion program

1. Waste becomes a desirable resource and asset.
2. Waste disposal costs are not the focus
3. Diversity in the use of converted wastes.
4. Capital investments are reduced by cost sharing
5. Waste conversion is a better use of resources and economic returns
6. Positive effects on rural community's revitalization and economies
7. Revitalization of farm soils and profitability.
8. New agricultural and crop growing technologies and efficiencies
9. Food crop nutrition technologies and human health benefits
10. Reversals in carbon emissions- carbon absorption with net gain sequestration rates.
11. Next generation bio fuels and no dependence on US subsidies.
12. Productive uses of the Hanford Reservation land including remediation of the soils.
13. Return on investment for Hanford Reservation nuclear soils clean up.
14. Removal of residual toxic elements in our bio wastes and waste waters.
15. No maintenance and/or low maintenance options in purifying our polluted waters.
16. Recycling water in water-scarce areas for agriculture.
17. Producing new jobs with linked job multipliers
18. Positive world trade balance contributions now and in the future
19. Wide ranging menu of positive political causes for political groups or constituents
20. Political causes a partisan politician can believe in and be successful.

Wastes Streams

Our largest-most readily available, least expensive natural resource today is man made waste. Bio-solids from waste treatment plants, dairy and animal manure wastes, Beef cattle feed lot wastes, Food processing wastes, Yard wastes, Demolition wastes, Municipal collection wastes, Nuclear wastes, Contaminated soils, Forestry waste, Pulp mill wastes, Bio-fuels waste, Industry smoke stack waste, to name a few, all can play a part in the EkoTek regional advantaged approach.

Ecological / Economic Benefits

(Nationally scalable implications)

One ton of EKOTEK HUMUS creates 8.8 jobs - ave. wage $17.00/hr 45,000 jobs = $1.6 Billion.

JOBS

Expansion of market opportunities and ecological regeneration

Creates Sustainable Regional Industry

Creates New Regional Jobs

Increases Regional Pay Scale

Regional Market Impacts

Farm Input
More Benefits
Less input cost to the farmer

Nutrition
Better consumer products

Enhances Grower Industries
Better bottom line

Fertilizer Superior 92 Element
Expanded Multiple Carbon Credits

Multi Use of Single Crop
TRI-CROP use

Lower Production Costs
10X the yield of corn

No Negative Impacts on Food Prices
Corn vs Arundo

Bio-Fuel Efficiencies
Arundo seen as source crop
Expanded Multiple Carbon Credits

EKOTEK WASTE CONVERSION

Converts Waste into usable products
- More carbon credit savings -

All Pharmaceuticals-Hormones-Steroids, Heavy metals, and toxic materials are removed in processing

Verification of Every production run is checked for contaminant residuals by Independent Laboratory Analysis

Nature of EKO-TEK process results in high levels of efficiency and expansion of related industries and creation of new products

Raw Waste Resources

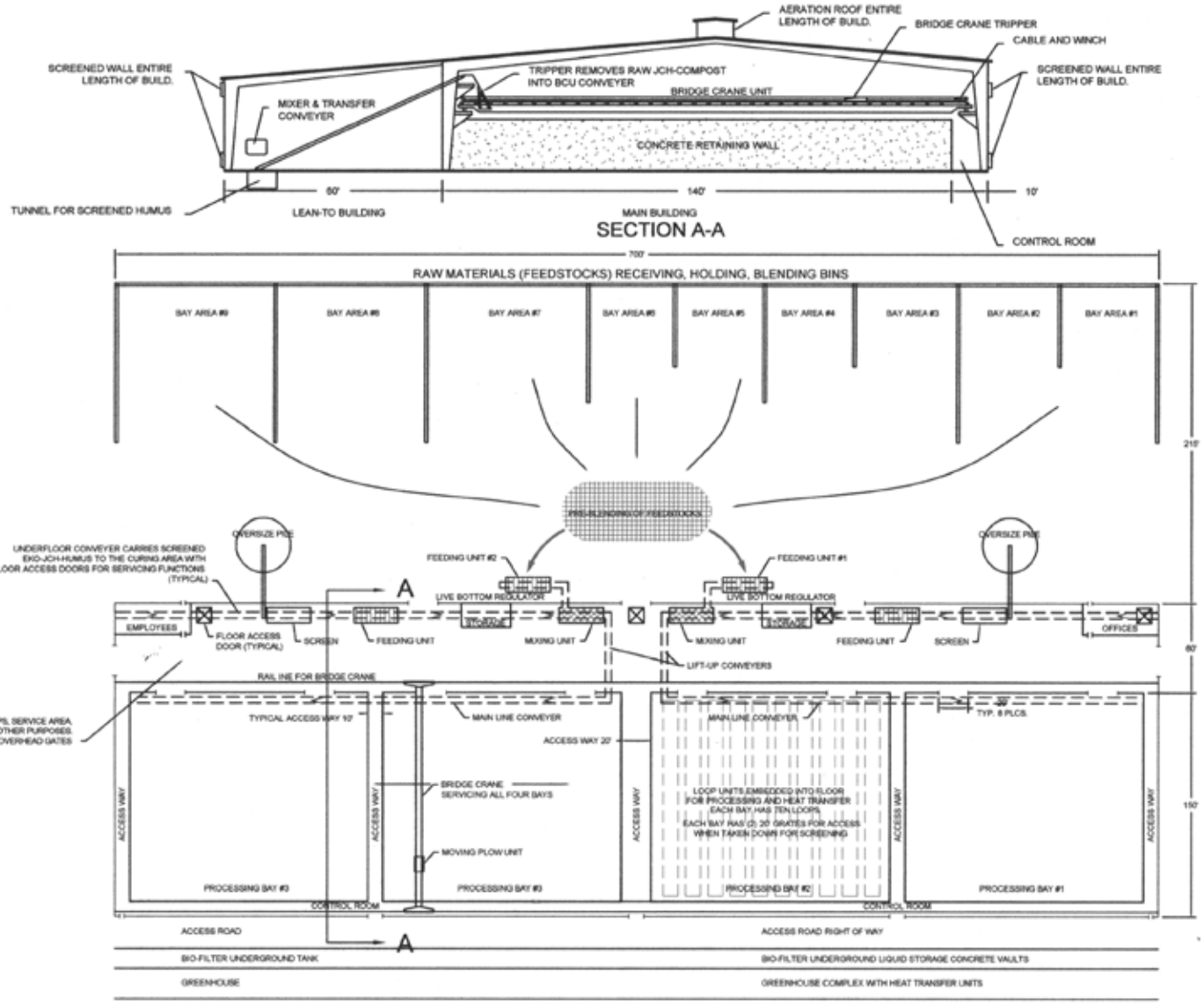
Waste is a positive resource
- First carbon credit savings -

Municiple Waste

Bio Waste and Yard Waste

Demolition Waste
Carbon & Mineral

Waste viewed as an economic driver



EKOTEK
WASTE CONVERSION PLANT

See plant photos in appendix

EKOTEK
WASTE CONVERSION

Converts waste into usable products
- More carbon credit savings -

(*) Carbon credits are to be determined.

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1
Wastes are received in doors under cover.
(Wastes are sorted for best use into end products) (*)

2
Receiving capacity-26 rail cars
(Unloaded @ 15 minute intervals into below ground mixing pits with reversible conveyors) (*)

3
Wastes are treated upon receiving
by the automated odor control and emissions capture system (*)

4
Upon receiving of wastes, enhancement additive materials
(Enrichments) are applied and mixed with wastes to be conveyed into the processing loops.

5
Mixed wastes and material additives are moved into the processing
"Loops" for curing by Bridge crane

6
After anaerobic curing periods and manipulation,
the maturing humus is moved out to the aging area for final blending of additional enhancements

7
The refined humus is screened and sent to the granulating production
building for additional blending into several forms of end use products. (*)

8
Granulated products
are then package for the numerous markets. (*)

9
The raw leached liquids from the humus processing are transported
by a pumping system to curing storage tanks where they are enriched for finished ("Ripe") foliar spray fertilizer products, with the "Membrane Permeability" technology treatment (*)

10
The Bio fuels refinery building receives wastes
from the waste determination center and distribution upon receiving, and conveyed directly for processing. (*)

11
The bio fuels plant is in a separate building and produces 60 millions gallons
of fuels annually from as much as 600,000 tons of assorted feed stocks (Plant can be expanded) (*)

12
A detached combined teaching center and green house complex uses the heat
from the "Heat exchange transfer" system utilizing the humus processing heat. (*)

13
The greenhouse uses the patented tissue culture technology
to produce and grow the "Arundo" transplants for bio fuels and animal feeds. (*)

14
Other greenhouse related crops are also grown,
for sale into the fresh foods winter markets locally

Increased Job Impact

Under the EkoTek regional program many more jobs are created than for a single use purpose program. The multiple use approach benefits many communities along the way. Bio-solids can come from Seattle, Spokane, Yakima, Tri Cities, Portland and Boise, etc.

When the multiple crops approach is used it benefits:

Food processors; Bio fuels producers; Railroad; highway transportation; University Research and Science departments; and Fertilizer industries & companies; Lawn and garden stores; Wholesale Nurseries in Oregon, Washington, Idaho; the extended three States of farmers, including Dairy operators, Wheat growers, Fruit growers, Row croppers, Field croppers, Berry growers, Animal feed stocks operators, and Distributors who service many ancillary markets and all will feel resultant sustainable job increases. 250,000t x 8.8 = 2.2M jobs

The entry level jobs that EkoTek provides are projected to pay $17.00 per hour.
One ton of refined EkoTek Humus creates 8.8 jobs directly and indirectly.
The EkoTek first phase plant can produce 250,000 tons of refined Humus.
2,200,000 jobs in phase one are affected

See Appendix Page 26

EKOTEKs technological approach to Waste Processing and management enhances and broadens the interrelationship of ecology and economics.

Resulting in the creation of interrelated MARKETS

FARM AGRICULTURAL
Human and Animal foods

DAIRY FEED, PAPER, BIO-FUEL
Result of EKOTEK introduced multi (tri) use crop source.

PUBLIC SCHOOLS AND PARKS
Commercial Landscaping
Green Belt, Golf Courses

NURSERY AND GREENHOUSE INDUSTRY

RECLAMATION
SOIL, WATER, MINING

The Importance of Water

Water conservation, Water clean up and restoration, Water recycling, becomes economical and achievable. Wet land restoration and wet land construction is of enormous importance. Water, its conservation, purification, recycling and reuses are a huge part of this program. Water is important enough that we will devote considerable content to its value here.

Removal of toxic residuals from water resources

Let's look at water and the associated problems today in cites and rural areas. Waste water is just now being examined for "Residuals" that, up to now, have been ignored. Pharmaceuticals, Hormones, Steroids, Nitrates, Phosphates and other toxic elements and compounds are being flushed down our toilets and septic systems. Manure wash downs in the dairy industry, and in our raw manure land applications from animal operations have been indiscriminately disposed. All these collective residuals are beginning to appear in our water wells, aquifers, rivers, inner sounds, and oceans. The many different ways that these collective residuals arrive in our waters is cumulative through many different practices that have been historically acceptable.

The least expensive approach to reducing and eliminating many of these collective residuals begins as close to the source as possible. In the case of bio-solids it is either at the Municipal-County waste treatment plants and/or at the dairy manure wash-down and manure management areas. In the case of the waste treatment plant bio-solids that are transported to EkoTek for processing, we can remove the residuals through proprietary processing into the refined, finished products. In the case of the dairy manure wash-down and management areas, we have a plan for reducing the dairymen's capital and maintenance costs and providing low cost transportation of the animal bio-solids to the EkoTek plant, where we similarly remove all the residuals.

We also include a water recycle program for the dairy operators that cut the dairy water costs and needs, thereby offering more water for other farming and irrigation needs in the area. The bio-solids residual removal is guaranteed by Ekotek, and the guarantee is supported with independent laboratory test analysis for each production run of finished, refined Humus product prior to shipping.

Another way that water purification can be accomplished is by using the high grade and refined Humus produced by EkoTek for a "Biological Transmutation" water purification pond system that eliminates toxins, residuals, including water purification of waters containing nuclear elements and compounds. Two types of pond systems are available. One option is large scale man made wet lands requiring no maintenance ever, and the other option is for small pond acreage with limited land space. Land-short limited areas require maintenance every five years. The humus materials are dredged out and replaced with new humus. The dredged humus is sent to the humus production plant for more intensive remediation and purification and for reuse.

The wet land choice or pond systems choice can be utilized for purifying waste treatment plant water for irrigation or for potable water use.

Option (A) Man made swamp lands:

1. These are areas that would operate for 100 plus years with no maintenance.
2. 5 million gallons per day requires 500 acres (Spokane size would require 20 mile pipe lines)
3. 25 MGD = 2000 ac (Portland size would require 100 mile pipeline)
4. 100MGD = 5000 ac (King County size would require pipelines 100 miles from King County)

Option (B) compact ponds with Ekotek Humus

1. These ponds would require replacement of Humus every five years
2. 5MGD=25 ac (Spokane size) 20 mile pipe line
3. 25MGD=100 ac (Portland size) 100 mile pipe line if closer acreage not available
4. 100MGD=400 ac(King County size) 100 mile pipe line if closer acreage not available.

Wetland Restoration and Development

This requires a combination of engineering, careful monitoring and high grade Humus use to purify water at affordable costs. Wetlands are a valuable resource that is often misunderstood. Wetlands absorb large volumes of water. Wetlands store Run off from storms and are a natural water purification system while it slows water movement. The slow moving water and the natural humus held in wetlands have superior water purifying function and qualities.

Building man made wetlands requires high grade Humus if the wetland is to purify water. Adding the right combination of water plant life is critical as well. A wetland ecosystem requires the bog type pond bottom soils that can draw contaminate to it as a magnate attracts metals. The horse power of this function is directly related to the manmade materials used to simulate natural wetland bogs. EkoTek formulates and produces manmade Humus to replicate nature's pond bog bottom soil materials.

Depending on the purification quality level, the water can be safely used as potable water or non contaminating irrigation water etc. More water for fish, More water in times of drought, Low water availability supply, More land put to productive use, Recharging of aquifers, Shallow well protections, Non release of waste waters that cause residual contaminations, Cleaner water ways and major bodies of our waters, are all possible through cost sharing and Ekotek,s waste conversion systems and programs.

Water Conservation, Contamination and Purification

When water becomes contaminated, its use is restricted and it is costly to purify. The best possible method of purification is prevention of contamination. Certain water, however, cannot avoid contamination due to the nature of how it is being used.

Let's look at some methods of cost efficiently and effectively purifying water. Recycling used water is the first method. The most cost effective method is to use recycled water whenever possible.

Slurry pipelines can be another method for recycling. Wet lands construction or utilization can be still another method. In the case of Dairy wash-down operations, EkoTek's Slurry Pipeline, dewatering and return of water for additional wash down offers tremendous savings in several ways. Recycled water use, carbon sequestration, waste disposal, capital investment cost sharing, and productive use of the wastes are very compelling benefits of the EkoTek program.

Waste treatment plant water is another huge water use where treated waste water residues are now becoming a concern. Since a waste water treatment plant already has a dewatering system in place, the water purification and reuse of the water requires a different program than the dairy industry.

Wastewater pipelines have great value when the treated waste water is sent where either one of two types of wet land water purifying pond systems is utilized. The first choice would always be to use the no-maintenance wetland plan if enough land is available.

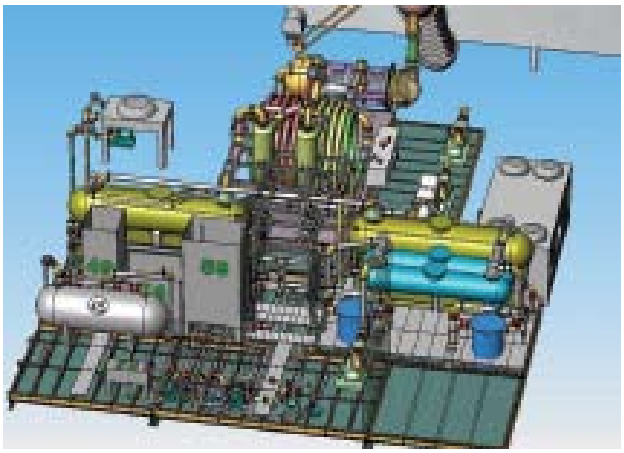
The second choice would be used if land were limited for wet land use. Natural wet lands could be a third choice if the available natural wet land size is suitable or if a natural wet land could be increased in size provided certain mitigation protocols could be engineered and set in place.

Enough about water…let's discuss some additional benefits of the EkoTek program.

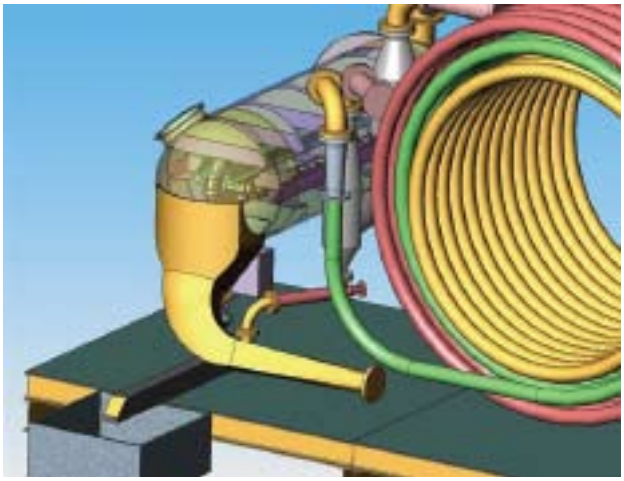
Bio fuels

Next generation bio fuels technology is now a reality. Multiple carbon feed stocks in one fuel producing facility replaces dedicated limited single feed stock production plants. Any Cellulose plant crop or, any Carbon Based Material can be used as mixed feed stocks. Multiple fuels can be produced using a wide range of feed stocks as opposed to only ethanol or only bio diesel fuels. No emissions or waste materials are produced. 100% of the input feed stock is used. EkoTeks cellulose feed stock crop also has multiple uses other than only bio fuels. EkoTek cellulose crop produces six times the bio fuels per acre than that of Corn, Soy bean, Mustard, and other cover crops. Planting and tilling costs are twenty times less expensive than that of corn and soy beans. Government subsidies are not required for production profitability. Production costs are $0.45 to $0.75 per gallon depending which feed stocks are used.

Harmful emissions are eliminated from EKOTEK bio-fuels with our new generation of technology. "Carbon" rich rubber tires are used as feed stock for bio fuels production. The 3% ash from bio fuels carbon feed stocks are used for certain composting needs and then are "Biologically Trans-mutated" into quality elements. There are no residuals that are considered or listed as potential contaminates for any purpose from this process.



Overview schematic of our patented system oriented to process multi-waste feed stocks.



Detail of distillation schematic

Nutrition and Health

"Membrane Permeability" is a new technology that EkoTek will introduce to the farm industries. This is an extremely important aspect of this technology.

90% of all food crops sold for human consumption today are hybrids.

Hybrid plants loose the ability to synthesize many of the soil elements even when they are available in the soils. Each generation of a hybrid looses more ability to take up available elements. The best example is hybrid corn. The old open pollinated corns of our grandfather's generation had 20 to 22 elements. Today many of the hybrid corns have as few as eight elements. Modern corn is the equivalent of junk food by comparison to the old open pollinated corns.

The EkoTek membrane permeability liquid spray application products can feed the hybrid plant through foliar applications. In essence, this topical method force feeds the crop and supplements that which is not taken up systemically by the root through synthesizing.

The lack of nutrition in our foods grown today, lowers our immune system, and may have a great deal to do with the diabetes and other prevalent chronic illnesses present currently in our country.

Taste in our foods today is rather bland due to the low element counts. "Brix" or Sugar in food crops has a direct bearing on the level of tastes in our foods. The Brix levels are what give our apples their taste and crispness we like, or the tomatoes sweet taste that we like and so forth. The Brix levels are also an indicator of the elements that are present or not present. All foods have a Brix count. EkoTek has studied the Brix food scientific scale extensively for the last 60 year period of time. As an example Calcium counts have declined by more than 89% over the last 60 years in the majority of our foods we are accustomed to eating.

The EkoTek "Membrane Permeability" and the fertilization program will replenish nutrition values and vastly improve the taste of our food. Additionally farmers will realize higher prices and better margins for nutrition-rich, good tasting products therefore helping to re-vitalize agricultural industries. As these improved crops become plentiful, awareness and demand will spread. This demand can have a positive influence on export business and even affect the balance of trade.

Rural Small Farm Economies

Soils reclamation and restoration while continuing to farm can be accomplished by using enhanced EkoTek Humus products. Today's small scale farmers that are unable or unsuccessful in receiving US Farm subsidies can economically benefit from the EkoTek seven year soils restoration programs. Depleted mineral elements are inexpensively provided in a EkoTek seven year soil restoration program. Upgrades in crop nutrition, when following the seven year soil restoration program, is accomplished by using the refined dry "EkoTek Trace 92" Humus products in combination with the "Ekotek Trace 92" ninety two element foliar applied "Membrane Permeability" technologies. Missing or depleted elements are supplemented for a crop through the nutrient rich foliar application as part of the program. Fully supplemented crops with all necessary micro elements strengthen plants to resist disease and pests that are otherwise attracted to deficient plants.

Healthy plants require considerably less pesticides use. More micro element content in harvested crops translates into more nutritious foods that in turn create more demand at higher harvested crop prices. Less food intake is required by humans and by the animals we raise when sufficient nutrition is present in the foods we eat.

See Appendix Page ???

Farm Emissions and Carbon Absorption

According to the UN IPCC (Intergovernmental Panel on Climate Change) and others, US Farming adds 18% to Global Warming. Some scientists say it is closer to14%. Farms are not credited with the carbon absorption of their soils and the absorption by the crops they grow. It is estimated by some scientists that farm absorption is in a range of 10% to 14%. It is also worth noting that some scientists estimate that on farm carbon sequestration can be doubled. A net sequestration on the plus side of emissions can be achieved by using the EkoTek Humus programs. EkoTek program Sequestration credits can be gained from the multiple forms of enhanced bio-solids, soil fertilization, bio fuels production, and reductions in pesticides use to name a few. Crop selections and harvest volumes are a worthy area of investigative consideration.

Transportation Impact Reductions

The Ekotek plan and program turns the normal transportation problems and negatives into positives. The Centralizing of the Ekotek Waste Conversions Plant and its economy of scale make it possible to greatly reduce problematic truck traffic.

Transportation of large volumes of wastes by Rail or by pipeline helps to mitigate trucking problems. Limited highway capacities, Exhausts emissions of multiple trucks, Roadway trucking numbers and impacts in a community setting, Fuel usage, Man power, Insurance costs, Roadway accidents, Job shifting advantages, Loading and off loading, are all negative impacts and costs that are reduced by Economy of scale and Centralizing of waste disposal and conversions. Basic reliable and predictable safe movement and storage of wastes are attractive benefits when rail and large capacity automated processing are combined in the Ekotek plant design.

Basic reliable and predictable, safe movement and storage of wastes are compelling benefits when rail and large capacity automated processing are combined the way EkoTek has designed their plant. Rail freight and Rail traffic has been ignored as a way to improve and upgrade our highway and transportation system in the US. EkoTek's program and plant design rely heavily on rail, with rail being approximately 75% and trucking and pipeline combining to represent 25% of the transportation needs.

The Ekotek Technologies:
Ekotek Humus is a Seventh Generation Proprietary Technology.

(1) Old European composting & 30 CEC grade
(2) United States first commercial composting facility & 50 CEC grade
(3) Improved commercial composting & 100 CEC grade
(4) First commercial man made Humus & 200 CEC Grade
(5) First 275 CEC grade Humus
(6) First 375 CEC grade Humus
(7) First 800 CEC grade Remediation Humus
(8) First 1000 CEC grade Humus in development.

The high grade CEC or horse power of the Ekotek Humus is accomplished with precise processing utilizing highly sophisticated computer programming, formula, enhancement materials, and the specialty automated processing equipment. The automated equipment and its processing technologies are third generation plant automations. The highest grades of Ekotek Humus "Trace 92" contain all the 92 elements necessary for plant growth vitality and nutrition. Conventional fertilizers usually have three elements; with the most dominate elements listed as NPK-Nitrogen, Phosphate, Potash. It is important to know that the "Transmutation" part of the Ekotek New Generation Humus Technology and Processing destroys or removes residual and toxic materials compounds that may be present in bio solids.

See Appendix Page 40

Ekotek Proprietary Mixing and Granulating Process...

Preserves the enriched and highly concentrated microbial values in the various formulated mixes for end use products. The critical moisture levels and the controlled pressures in the granulating process are extremely important to the formulated end uses. The granulated products have taken the bulk out of the composting and now are high grade Humus products. Conventional farming, commercial, and home use fertilizer applicator equipment can be used for most all soil and turf cultural needs

Ekotek Membrane Permeability Proprietary Foliar Plant Feeding System

This relatively new and unique technology resolves most Hybrid Plant Nutrition problems. The inability of today's Hybrid Crops to synthesize some available soil elements vital to pest resistance and for animal and human nutrition no longer is a problematic issue. It would not be possible to reverse the hybrid deficiencies if for no other reason than the negative economic impacts and the resistance by major seed and plant producers and suppliers. The ability to open up the plant membrane naturally, so the nutrients in the Ekotek foliar feed is injected into plants is one of the most important discoveries and developments that can be priceless to the health care system in our country.

Taste, Nutrition, Shipping quality and less loss, Keeping Qualities and longer Shelf Life, are important economic values. The Grower, Transportation Companies, Food Distributors, Food Storage Companies, Food Processors, Value Added Food Producers, and the End Users all benefit economically from the EKOTEK Membrane Permeability Technology.

Fluid Grade Enhancement Elements...

are an important part of Ekotek's ability to produce high grade CEC Humus products. Particle size must meet certain requirements before they are used in the Enhancement processing and formulating of the high grade Humus products. Particle size determines the synthesizing process in the soil and single growing season cycle. Blending of 92 elements for use in one growing season and the added ratios to bring back soil fertility levels over a seven year Ekotek program are critical in the materials and technologies employed. Biological Transmutation and microbial family formulae are proprietary for many of the specialty end use areas.

EKOTEK Minimum Quality Standards Comparisons:

US Federal Standards for allowed limits of biosolids and compost chemical content-US EPA #503. EKOTECH standards far exceed the EPA #503 Regulations.

See the heavy metals breakdown annalysis in the Appendix Page 37

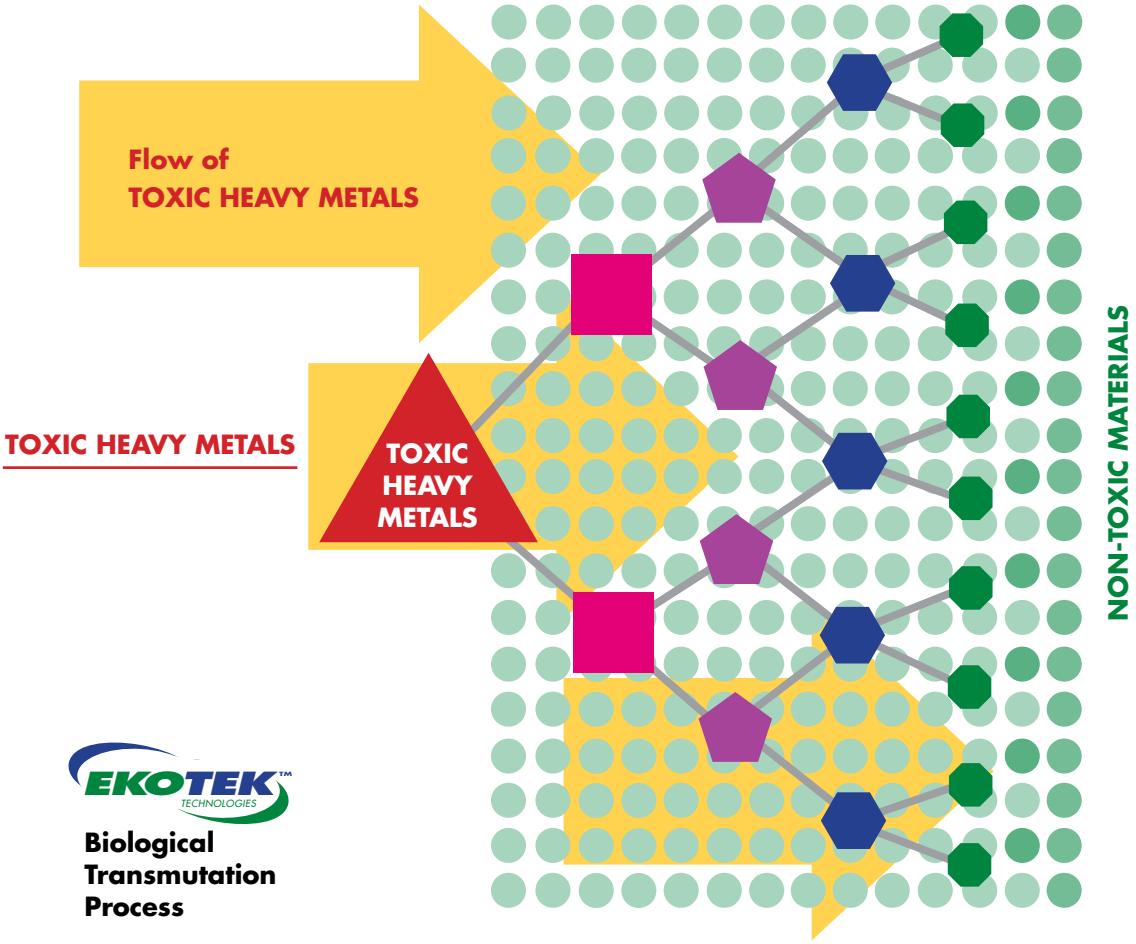
Biological Transmutation Technology

This is a relatively obscure area of applied science and not very well understood except for a limited number of well educated scientists. Scientists are not studying Biological Transmutation nor have they practically used or worked with the process. However, Biological Transmutation is so powerful that it can actually degrade nuclear elements quite rapidly.

Fuel rods in nuclear power plants need to be replaced periodically because of the degradation by microbes living in the cooling water that feed on nuclear materials.

EkoTek formulates Humus that fosters a perfect environment that greatly multiplies the microbial population such to affect nuclear degradation. The right environment must be provided for rapid multiplication of several microbial families and contain all micro elements as well for nuclear biological transmutation to take place at rates that are commercially feasible. Biological Transmutation can also be used to degrade and consume many less difficult materials or complex chemical compounds such as munitions and petroleum based residuals. Conventional composting and conventional low grade humus production does not always remove or destroy residuals such as Pharmaceuticals, Hormones, Steroids, and other Chemical Compounds not tested for up to now.

Reduction of heavy Metals and Chemical-Nuclear Compounds



EKOTEK™ TECHNOLOGIES

Biological Transmutation Process

See Appendix Page ???

BUSINESS STRUCTURE

The Business Structure of EkoTek BIOTechnologies, LLC

At present, EkoTek is a consortium of five companies and their respective principals. The five individuals collectively, have over 180 years of experience in the operation and management of their own specialties of business. Each member of the management team brings specific expertise to the EkoTek business development team. Listed below are the officers and current members of the EkoTek™ development team and some of their individual credentials. As the program grows we will utilize all of the assets of participating entities and add other personnel and systems as needed.

This overall concept has vast implications – it is with considerable effort that this condensed compilation of information is assembled into this document. All of the members of the consortium have brought to bear their specialty talents to compile this document. Over the course of considerable time the science has been refined and has been transformed into a practical approach for the extended benefits it can deliver. If this program is to come to full realization it will require vision, commitment and cooperation from government and private entities. Our hope is that you share our enthusiasm for what it can mean to all of its beneficiaries.

Joseph C. Horvath, Ph.D.

Founder and Director of Bio-Science & Engineering

The extensive scientific data and content of this program is a result of extensive research, a library of documentation and a lifelong dedication to application and process refinement by Doctor Joseph C. Horvath.

EKO JCH Waste Processing Inc.

"Doctor Joe", as he likes to be called, is truly a remarkable man. Born and raised in Hungary he is a third generation member of an agricultural, horticultural and composting family. He achieved his university education at the University of Budapest with a Ph.D. in economic Sciences and Technology. He immigrated to the United States in the mid 1950s where his first position was with the RCA Research Center. He continued his education in the U.S. at Rutgers University receiving his MA and completing his second Ph.D. in 1962.

Doctor Joe is internationally known for his work in natural resource and waste management fields. His illustrious career includes employment with federal, state and municipal government agencies and numerous educational positions– too many to list in total – to list a few: Bureau of Business and Economic Research; The U.S Department of the Interior; The Midwest Research Institute; Georgia State University; Georgia Institute of Technology; and University of Montana.

In the 1970s Dr. Joe left the research and educational areas to form his own consulting firm to focus on environmental problems. JCH Environmental Engineering, Inc. focused on land development, technological improvements and resource and waste management. Some of his clients included: U.S. Steel Corporation; Gulf Oil Corporation; Austral Oil and Nuclear Engineering Corporation; United Nations; USDA Forest Service; U.S. Department of the Interior.

Doctor Joe is widely published and quoted in his fields. He has published over 170 volumes in natural resource management fields. Publications related directly to solid waste management: bio solids; yard wastes; wood wastes; food processing wastes; varieties of manures; septage; tree trimmings; grasses; agricultural and orchard wastes, municipal solid wastes, market assessment; supply and testing.

He has conducted studies and consulted with clients regarding: Wheat Research; Three separate manuscripts on the management of Humus; Heat Recovery at Composting Plants. He has conducted solid waste management studies for: Des Moines IO; Grand Rapids MI; Indianapolis IN; Maui HI; Orange County CA; Orlando FL; Phoenix AZ; Columbia Microbial Corp. in Umatilla OR, Stanfield OR, Moses Lake WA; Cheney WA. His firm has completed over 75 municipal, public works and private enterprise projects. In addition to his scientific and intellectual expertise he is deeply experienced in the construction, training, operations and maintenance aspects of development and management. He is eminently qualified and a proven world expert in this arena.

James L. Akers

CEO & Business Development Manager

Jim brings to the CEO post a long record of achievements and successes within several different industries. Whatever the challenge or opportunity Jim's abilities will provide the leadership for achievement.

Multi-Marketing Corp.

Mr. Akers' experience can best be summarized as a market maker and business development strategist. He is experienced as a turnaround specialist hired by distressed corporations to reorganize and redirect operations. More recently his company's focus has been on new company incubation, market assessment, product positioning and introduction.

Mr. Akers is a master strategist and orchestrator of business and markets. Jim is modest about his own contributions in conversation but has an impressive list of historical market changing accomplishments in terms of impact on industry and on the companies for whom he has worked. His market-making concepts in the shooting sports, Pet supply and distribution, Garden
supply and distribution, as well as in other industries were revolutionary. Jim adheres to the philosophy of "New Product Is The Life Blood Of Any Company", and proceeds to develop new products that are positioned to aggressively gain market share.

Some examples of pioneering firsts that effected markets:

- Introduce many private label products to chain stores
- Package and distribute 25# cat sand by the rail car load
- Purchase cat sand in rail cars
- Purchase aquariums in rail car lots
- Reach $10 million in sales for a single pet department
- Reach $1,200 per square foot in a pet department sales-Equivalent to $9600. in 2009 dollars
- Built a mass market distribution system for pet supply that competed with factory direct
- Competed and out sold Sears And Roebuck Corp store for store with fertilizers he developed
- Changed the gun industry distribution in the US

- Broke several fair trade practices in the US
- Developed many inventory control systems now used in modern day computing
- Developed "Membrane permeability" Nutrient injection for hybrid deficient crops in today's agriculture
- Co-developed a compost/Humus quality and efficiency Rating system (horse power)
- Installed the first turf sod (Lawn) installations in eastern WA.
- Co-developed the first Dairy waste (Manure) slurry pipe line concepts
- Co-developed natural frost freeze prevention for temperatures down to 24 Degrees Fahrenheit
- Co-developed liquid supplements for agriculture crops

He has had similar results in the retail and wholesale distribution system for several industries. Jim was also instrumental in breaking the fair trade agreements affecting the fire arms industry, that set up the market for his clients to dramatically increase market share. He forced Remington and Winchester Fire Arms Companies to end their "Fair Trade" policies.

Jim is an expert strategist and meticulous manager of complex business models. He believes in empowering the people around him., assisting them in building confidence and assuming responsibility.

Pedro (Pete) Garza Jr.
Executive Director of Construction & Labor Relations
De la Santos Construction / EG Environmental Services
Pete has developed his career from the bottom up. He is a veteran of The United States Army. Early on, he completed his own labor apprenticeship and became the business manager for his labor union. His next post was the Apprenticeship Coordinator for the U.S. Department of Labor.

He then formed Garza Construction Company and his many clients included U.S. Corps of Engineers, U.S. Department of Energy, and Washington State Department of Transportation. He completed many projects for these important agencies and ultimately was awarded the Small Business Administration's Minority Contractor of the Year for region 10.

Pete is a member of the U.S. Hispanic Chamber of Commerce and was awarded the Hispanic Businessman of the Year for region 1. He had an assisting role in the formation of TERO, tribal employment rights organization. Senior Garza will play a critical role in the bidding and construction phases of the conversion plants. His implementation plan calls for maximum utilization of all existing tribal businesses. He has proven access to government funds to be used for training programs for tribal people. In addition to plant and training functions, Pete will lead the information transfer of EkoTek programs for soil enrichment and fertilization.

Pete's is truly a champion for people as his extensive background and experience demonstrates.

Michael G. Mayes
Director of Strategic Marketing
The Marketing Connection, Inc. is a consulting firm founded in 1986 by Mr. Mayes that assists companies in growing their business. The firm assists corporations focus business objectives and pursues those goals through the dynamics of strategic marketing planning and implementation. The simple mission of the company is to affect positive business outcomes for its clients.

Prior to founding his own firm, Mike spent over 16 years in the advertising agency business where he was executive vice president, general manager of a Puget Sound Agency. He has deep experience in corporate identity, product positioning, branding and all aspects of marketing, advertising, sales promotion, merchandising and public relations. He has been integrally involved with numerous product introductions of national and international scope. Mr. Mayes is highly regarded in the industry for his expertise, integrity and professionalism.

Bradly J. Mix

Marketing Communications Director

Mix Design, Incorporated is a marketing communications and graphic design company that was founded in 1990. His firm takes a unique approach to design and believes that design must be anchored in marketing and must be accountable to business objectives. These fundamental principles of concept development drive the firm's solutions to higher levels of performance and business responsibility.

Mix Design has worked with an impressive list of clients including; AT& T, Microsoft, MetroCall and numerous others involving a wide variety of industries. Mr. Mix is expert and broadly experienced at corporate identity, company and product positioning, brand development and has a full command of graphic and electronic disciplines.

Synergistically, these two companies (the Marketing connection and Mix Design) work together to develop vision, posture, incubate progress and grow companies into their full potential. Together, The Marketing Connection and Mix Design have helped numerous businesses grow dramatically over relatively short periods. The core talent and management skills of these individuals and their extended resources and contacts will serve the corporate marketing function well and be an important part of the overall development of EkoTek Technologies and the universal branding effort.

George J. Horvath, PE, EE

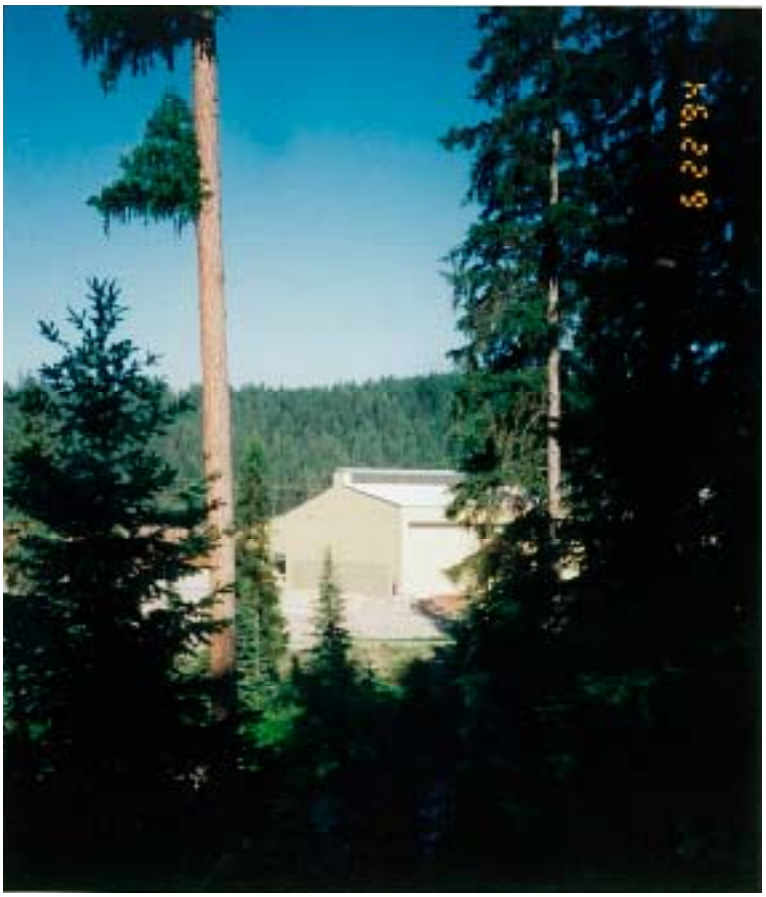
Director of Plant Engineering & Operations

George was educated at the School of Electrical Engineering at Cornell University and holds the distinction of PE and EE status. He currently is employed by Montana Power Company as Senior Engineer. Mr. Horvath has responsibility for designing and supervising the construction of electrical distribution systems, sub stations and supervision of staff engineers. At his current post, George has consulted with and designed equipment for the Humus plant operations of EkoTek. George is one of two sons of Dr. Joe's and represents fourth generation family lineage of the Horvath Technologies. He has been involved in EKO-Composting since it's beginning and has been contributing knowledge and energies to the refinement of JCH Humus Technologies. He is in possession of a duplicate set of the trade secret formulas and other proprietary information and stands ready to be activated into management of the business when the time is right.

Appendix Section 1 - Humus Manufacturing

Doctor Joseph C. Horvath is the lead scientist for EkoTek and has devoted his entire life to this area of science. He has been philanthropic in his efforts to introduce his technologies to a wide variety of uses to the benefit of many. Numerous composting facilities and remediation projects in operation today use his basic designs and formulas.

Doctor Horvath has been actively working to refine and extend his scientific applications to societies' growing need to solve the management of perpetuating waste streams. What is available today constitutes an entirely new generation of technologies that combine for a more efficient and vastly broadened spectrum of applications than any of his previous composting operations.



Olney Montana, nestled in a forested area.
This building is 285 feet by 180 feet and 42 feet high

10,000 tons of humus under going processing

Process floor, over head bridge crane is parked at far end

After specific number of weeks, the screened humus is deposited into the curing area.

This is an empty Loop ready to be filled with 1,000 cubic yards
(There are 10 loops in this building, for a total of 10,000 wet tons of processing)

10,000 tons of humus under going processing

Bio-filter

Aeration floor unit

Processing floor, Screened humus is delivered by over head conveyor equipped with traveling discharge

Process floor, first mixed raw material is being deposited for aeration

Aeration floor unit

Aeration floor unit

This is an example of the organized and clean appearance of the operation

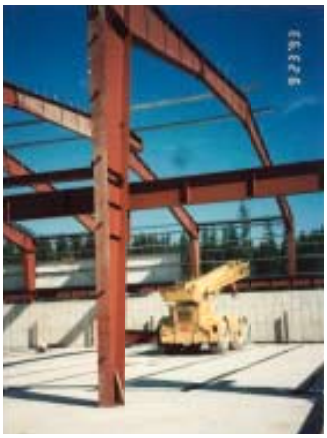
Processed humus is deposited into the hopper of the rotary drum screen for screening

Appendix Section 1 - Construction of Humus Manufacturing Facilities

Group of seven pictures showing Olney plant being built. Designed by Dr. Joe and built in 1993 & 94. This plant continues to operate to date.

Distant view of skelton building

Distant view of the central portion of the main building frame



Main building under construction view

This is some of the prefab structure prior to lifting into place

Interior walls and passage way for computer room and infrastructure piping etc

Main building under construction view

Main building roof framing

Appendix Section 2
YAKIMA VALLEY CONCEPTUAL OVERVIEW PLAN UPDATE
A. Waste conversions and farm nutrition partnerships

1. NEW CROP DESCRIPTION:

Arunda donax L. "Cellulosic bamboo-type grass" is a new crop "opportunity" for the Yakima Valley. Current tonnage as published in various trials around the world ranges from 20 to 45 dry metric tons per hectare. (A metric ton is 2,200 lbs, and a hectare is about 2.4 acres). Wet tonnage is a conservative 45 to 95 metric tons per hectare. Crop enhancement estimated minimal is two times the trial tonnage, when EKOTEK technologies are utilized.

2. EKO PROPOSESS TO EXPAND THE ANNUAL CROP USE TO A MINIMUM OF THREE PRIMARY USES:

Animal feed (1); bio-fuels (2); and either paper pulp, manufactured wood products, or compost carbon (3) would be used to consume 100% of the crop. The farmer would have a choice of where to sell his crop, thereby insuring consistent profitable prices. Minimum tonnages before enhancements would be approximately 4 to 19 wet tons per acre animal feed, 8 to 21 wet tons of bio-fuel bulk material, and 6 to 11 wet tons (2.5 to 5 tons dry) pulp/mfrwood/compost feed stock. Soy beans currently produce 160 gallons of oil per acre under ideal crop conditions. Alfalfa produces approximately 6 tons per acre. It takes four times as many acres to grow equivalent volumes of trees, based on a 5 to 40 year growing period, for paper pulp use. The current US subsidy for bio-fuels is $0.50 per gallon when utilizing waste materials, and $1.00 per gallon when growing virgin crop material. The estimated oil from Arunda donax L. ranges from 571 to 1500 gallons per acre. A Florida State field trial produced forage nutrition equivalent to alfalfa. Not all the stalk was usable, and the harvest timing was critical.

3. NUTRITION AND TONNAGE ENHANCEMENT

A combination of EKOTEK enhanced man-made humus, and the liquid membrane permeability nutrient technology will increase the nutrition value of the animal feed, thicken the cell walls of the grass subsequently increasing the oil (fatty acids) and other usable liquids and lipids for higher yields of bio-fuel. The same EKOTEK humus/liquid supplement program is utilized to increase nutrition in human food production. Hybrid plant does not take up certain minerals and vitamins, and therefore are not as nutritious as old varieties of open pollinated food plants. The EKOTEK membrane permeability technology injects the missing minerals and vitamins. Longer shelf life, better nutrition, high quality taste, and better shipping quality, and a more ripe mature harvest are all a result of this new technology.

4. WASTE MATERIALS ARE PROCESSED INTO HIGH PERFORMING SOIL AMENDMENTS AND FERTILIZERS

Two waste categories are planned. Dairy wastes will be targeted for human food crop use, while bio-solids wastes will be used for non-food uses. Since the US organic program prohibits bio-solids being used for certified organic crop uses, we will produce two basic humus products. The EKO JCH program is a proven and time-tested proprietary process. Several plants have been built in the US dating back to 1977, using the technology. Several upgrades in enhancement and performance levels have been developed over several years. The difference in quality and performance over other composts and so-called humus products can be measured by the cation (ME exchange rates). The addition of the granulating technology has simplified the logistics or bulk problems of the past and made it possible to enhance the basic high-grade humus to another level that is significant to the grower and applicators in the commercial industries. The addition of the proprietary natural supplemental liquids technology completed the missing links, in a comprehensive affordable farm fertilizer input program.

B. Consortium Approach

5. HUGE VOLUMES OF WASTES

Tipping fees to dispose wastes are abundant and required to process them. Many industries generate wastes that are not put into productive use. For the purpose of discussion we will deal with two prominent types of wastes.

Dairy wastes are a huge problem and growing. EKO Enterprises, Ltd. is a new concept waste to productive use product-company that will accept dairy wastes simply at a cost of delivering the wastes to our new plant that will be built in the area. In exchange of these wastes, EKO will utilize their technology to increase the nutrition value of new basic feed-stocks at prices lower than current grass types, such as alfalfa. These new feed-stocks will increase the nutrition of the milk that goes to the market. We know this because we will inject higher content of minerals and vitamins into the feed-stock crops during the growing cycle. Independent lab analysis will bear this out. We will look for a dairy partnership to bring this to other dairies in the area and then export beyond the area borders into other dairy states. We would anticipate that the dairy partner may want to manage the distribution of this feed program as well as take advantage of the branding program that will accompany this program.

EKO will be able to accept thousands of tons of biosolids wastes from municipals in the region. EKO will offer savings in current treatment plant operating overhead as well as new mandated capital costs associated with waste treatment plant upgrades.

These two types of waste volumes from dairy and municipals that are converted into high grade usable products will require large market acceptance. EKO realized that they had to develop rational for using these large quantities of converted wastes. The best way to accomplish this task was to develop a program that clearly benefited the users of large volumes of product in a way that saves them sizable bottom line. The new crop with its higher yields and less input costs, combined with a need that is not being addressed adequately, seemed a logical approach. EKO has therefore found a way to do just that. The Arunda donax L and certain other grass bamboo was researched and found to be the key crop to do everything that met the criteria.

6. WE BELIEVE THAT SEVERAL PARTNERSHIPS CAN BE PULLED TOGETHER IN A CONSORTIUM

By joining together in a common purpose, it is believed that the entire Yakima Valley will benefit. Combining technologies and utilizing a common branding program related to a new nutrition approach to our foods consumed in the US market, farmers, dairymen, food processors, will increase market demand and market share. The establishment of affordable renewable fuels produced in the valley will attract many new industries to the area, as well open the potential for new concept institutional technology instruction and development. US Grant support dollars will further the development of these industries and market direction. By offering high nutrition, better tasting, fresher longer shelf life crops in all area of the fresh crop markets, we insure long term sustainability in several areas of the Yakima Valley economy.

Appendix Section 3

Federal Standards for allowed limits of biosolids and compost chemical content-US EPA #503 Regulations comparisons chart

YYRHK City of Portland, OR. RFP 109947 Biosolids Use, etc. 5d. Section Page #1

US EPA #503 REGULATIONS 3/12/2009

EKOTEK HUMUS IS MANUFACTURED UNDER THE STANDARDS OF

US EPA #503, Federal Register, Vol. 58, No. 32, Pages 9387-9404

NOTE: Dr. Horvath is a third generation compost/humus manufacturer, and scientist. He consulted, assisted, founded, established or otherwise helped over 70 composting municipalities, firms, regional authorities, etc. He has Permanent Composting License from the State of MT. His sludge composting pre-dates the establishment of US EPA. He assisted in the formulation of the #503 Biosolids Composting Regulations in 1980's.

Administrated by States

1. Montana Department of Health & Environmental Sciences
   Environmental Sciences Division Helena, MT, 59620
   License to operate a Solid Waste Management System, License # 69
   EKO KOMPOST, Inc. was founded June 26, 1977
   Dated: July 6, 1978 Conditional EKO-KOMPOST, INC.
   License to Operate a Solid Waste Management System, License #188
   Date: May 12, 1981 Permanent EKO-KOMPOST, INC.
   License to Operate a Solid Waste Management System, License #342
   Date April 16, 1993 Annual Glacier Gold Compost, Inc.

2. Washington Department of Ecology Mr. Kyle Dorcy, Biosolids Coordinator
   POB 47600 Olympia, WA. 98501-47600
   A/C 360-373-0502 FAX: 360-407-6102
   (Cheney Municipal Biosolids Composting Plant, Cheney, WA. 99004-1866)
   Paul D. Schmidt, Public Works Director, A/C 509-235-7293
   JCH-Humus Manufacturing License, December, 1992

3. US EPA Dr. Robert K. Bastian, Biosolids Administrator
   US EPA National Head Office
   Old: 401 "M" Street, S.W. (OWM-4204)
   New: 1200 Pennsylvania Ave, NW,
   Washington, D.C. 20460
   A/C 202-260-7378 FAX: 202-523-1827

A. HEAVY METAL CONTENT: #503.10.Table#3.

Class A "COMPOST" Heavy Metal Concentration Limits: Milligrams per kilogram (ppm)

#	Heavy Metals Limits:	PPM US EPA	JCH Humus Heavy Metal Contents: Site A	Site B	Site C	Site D
1	Arsenic	41	N.A.	<4.0	<10.0	N.A.
2	Cadmium	39	0.15	0.52	<0.68	N.A.
3	Chromium	1200	N.A.	4.7	1.95	N.A.
4	Copper	1500	4.63	42.6	25.5	N.A.
5	Lead	300	5.2	12.8	N.A.	N.A.
6	Mercury	17	0.41	0.4	N.A.	N.A.
7	Molybdenum	18	N.A.	<1.4	2.6	N.A.
8	Nickel	420	0.87	5.6	N.A.	N.A.
9	Selenium	36	N.A.	<4.0	N.A.	N.A.
10	Zinc	2800	26.1	92.8	N.A.	N.A.

NOTE: Verified by laboratory analysis the EKO JCH Humus quality exceeds all the #503 Regulatory Limits.

B. PATHOGEN REDUCTION
#503.32.A.B. (Measured in Processing Temperature Limits)

	Temperature	Time Period	Percent Biosolids	Density of Fecal
US EPA:	50 Celsius	20 Minutes at least	7 percent or higher	Coliform: <1000MPN

EKOTEK HUMUS		EKOTEK	EKOTEK		EKOTEK
Site A	58 & <	4 weeks	24 percent	700*	MPN
Site B	60 & <	5 weeks	16 percent	360*	MPN
Site C	60 & <	7 weeks	10 percent	240	MPN
Site D	60 & <	8 weeks	N.A.		* extrapolated

C. VECTOR ATTRACTION REDUCTION #503.33.

	Volatile Solid Reduction	Aerobic Processing Time, Days	Aerobic Processing Temperature	Average Processing Temperature
US EPA:	38 Percent	14 Days	40 Celsius	45 Celsius
EKOTEK Humus				
Site A	30	56	Yes	58 Celsius
Site B	28	60	Yes	58 Celsius
Site C	25	60	Yes	60 Celsius
Site D	30	80	Yes	60 Celsius

D. FREQUENCY OF REPORTING, MONITORING OF PROCESSING

Frequency	Record Keeping	Laboratory Analysis Pathogen	Heavy Metal Lab Analysis
US EPA: Once/month	Daily	Monthly	Monthly
EKOTEK HUMUS	EKOTEK	EKOTEK	EKOTEK
Site A Yes	Yes	Yes	Yes
Site B Yes	Yes	Yes	Yes
Site C Yes	Yes	Yes	Yes
Site D Yes	Yes	N.A.	N.A.

NOTE: JCH Humus has been manufactured under higher standards, since it is a food-grade organic-mineral-rich fertilizer and soil conditioner.

US EPA #503 Regulations were published in 2-19-1993, while JCH compost and Humus manufacturing dates back decades earlier. (JCH is third generation composter).

The majority of plants under #503 Regulations "dehydrate" biosolids, and screen out bulking agents, EKO JCH Humus is made from green stocks, manures & less biosolids.
The longer time, the higher temperature, and the Trade Secret ingredients in EKO JCH Humus makes it higher in quality.
It is measured in cationic exchange capacity, greater range of microbial life, vitamins, enzymes, & trace minerals.

Science/excel/USEPARules/2/25/06 JCH

Quality Specifications

1. COMPOST

A. Definitions

Compost is a **One Growing Season of Useful Life** organic matter and as expected, its Nutrients are mostly in Water Soluble form. "

Webster defines compost: "A mixture of decomposing vegetable refuse, manure, etc. for fertilizing and conditioning the soil". (1984 Edition, page 291).

Nutrients are in water soluble form - that means, they are immediately available for the plant, similarly as most of the chemical fertilizers.

Horsepower rating is expressing the energy level, what any substance can provide. Therefore, it is a widely accepted standard for comparison in the compost-humus industry, when manifested in terms of cationic exchange capacity.

B. Cationic Exchange Capacity, CEC or TEC

Cationic Exchange Capacity: A positively charged electron of an alkali element, as a nutrient for plant life is able to be exchanged in a colloidal system of the top 7 inches of the soil. It is expressed as mill equivalents per gram of soil (ME). In practical terms, **one ME of this CEC per acre has the ability to absorb and hold 400 lbs of Calcium, or 240 lbs of Magnesium, or 780 lbs of Potash, or 20 lbs of Hydrogen.** Since this 7" of top layer per acre represents over 2 million lbs of soil full of nutrients, the ability of the EKOTEK Humus to make this huge "reservoir" of nutrients open for the plant roots to receive as they "call for them". This system requires well decayed, stabilized humus to work in this energy exchange system. This is not known to the general farmer, it is not taught in the conventional agricultural system.

C. Quality Considerations

1. Minimum Quality Compost

It is compost with 1 to 2 months of aging, curing - lowest grade, yard wastes, wood wastes, and biosolids, with a minimum of exchangeable cations of 5 ME. (Grade "C" – 5 Exchange Rates).

2. Medium Quality Compost

This is somewhat better quality, with 3-4 months of aging, curing, middle grade, with exchangeable cations of 6 through 15 ME. (Grade "B" - 15 Exchange Rates).

3. High Quality Compost

This is the best compost with a 5 to 12 months of aging, curing, highest grade, with a minimum of 16 through 25 ME cationic exchangeable level. (Grade "A" – 25 Exchange Rates).

2. EKOTEK HUMUS

A. Definition

EKOTEK Humus is a 5-7+ years life, non-water soluble, non-leach able, high CEC value, food grade quality organic-mineral substance. If soils are properly maintained, EKOTEK humus will support and maintain a healthy microbial life in the soil for years beyond the 5 to 7 years of normal expected productive life span of humus. (We have plots now with 20+ year's experience).

3. FERTILIZER QUALITY CONSIDERATIONS

"B" EKOTEK Humus Grade, with a 50-250 ME exchangeable cations.

"A" EKOTEK Humus Grade, with 251-350 ME exchangeable cations.

Humus is defined by Webster: Brown or black part of the soil, resulted from the partial decay of plant, and animal organic matter of the soil.

Non-water-solubility means that only acid can break this organic substance down as the plant calls for a certain nutrient, its hair-roots manufacture and exude acid to "claw out" or chelate that certain nutrient out from the soil to be taken into the plant.

Food grade quality is defined by the US EPA #503 as regulations to meet the limits on heavy metals, pathogen levels, temperature limits, and vector attraction reduction. It is a tightly controlled industry by US EPA #503 Regulations.

4. US EPA #503 Quality Parameters:
(NOTE: This applies to Biosolids Composting only and not to Rural Farm-related Composting or Humus Manufacturing)

A. EKOTEK Humus is guaranteed to always be at least **50% below the allowed Heavy Metals Limits as the US EPA #503.10.B Table #3,** Dry weight Basis, as requirements for food crop use.

B. Temperature Limits: US EPA #503.32
EKOTEK Humus is guaranteed to maintain higher temperature limits and for a longer time during processing than the **required 52 C (126 F) degrees, for and elimination.** ***Heat is the major factor of pathogen elimination.***

C. Vector Attraction Reduction: US EPA #503.33
EKOTEK Humus processing from the initial arrival of wastes is immediately sent to **pre-blending** for elimination of any odor production. Then blending, mixing and processing take place for the **vector attraction reduction,** not only to be reduced, but totally eliminated.

D. Balanced Cationic Fertility:
EKOTEK Humus does maintain a cationic balance of Ca, Mg, K, and Na. It also prevents overloading the soil with too many minerals.

E. EKOTEK Humus Can Be Formulated to Specific Requirements Custom Tailored to Market Demand:
EKOTEK Humus can be custom-made for crops, soils, and climatic differences as requested, bioremediation, concerning mineral and other nutrient content. In the organic-mineral-eco-agriculture the nutrients are both available by EKOTEK Humus as well as locked up. EKOTEK Humus manufacturing calls for only natural ingredients, never toxic, chemical, or hazardous compounds. Lab analysis is done by independent firms and also has to be filed with regulatory agencies at certain intervals.

5. COMMON SENSE APPROACH TO THE TERM OF: CATIONIC EXCHANGE CAPACITY

General Ideas

1. Soil colloids do contain nutrients which can be traded off for hydrogen so that plant roots could utilize them by absorbing them.

2. Two groups of soil classes do contain those nutrients, namely clays and humus. Sandy soils or gravel do not hold much or any nutrients at all.

3. All positive (+) energy is alkaline based, that is cat-ionic. The major cations are: Calcium, Magnesium, Potassium and Sodium.

4. An-ionic nutrients (-) are free agents since they are not attracted to their negative soil or organic matter particles, therefore they can freely move in the soil system.

5. Size of soil particles is an important factor. The number of soil particles in a cubic centimeter (3/8" cube) varies greatly: Sandy soil may have 10,000 particles, Silty soil may have 100,000 particles, but Clay soil may have 100 Million particles. Since each particle may attract certain nutrient, one can easily discern that the CLAY SOIL has more nutrient carrying capacity than the Sandy or Silty soils.

6. Within the clay soils this nutrient holding capacity varies, kaolin (white clay, porcelain) may have 10 to 20 ME value, while Montmorillonite clay may command 80 ME value.

7. Organic matter within soils has a wide range of nutrients holding capacity, from a low of 10 to 50, well decayed humus may have 250 to 400 ME values. However, these soils are highly fertile, sometime those should be less than that range.

8. Why? What these ME = milliequivalent values represent? "ME represents the amount of colloidial energy needed to absorb and hold to the soil colloid in the top seven inches of one acre of soil: 400 lbs of Calcium; or 240 lbs of Magnesium; or 780 lbs of Potassium, or simply 20 lbs of Hydrogen." (An Acres USA Primer, p. 121).

9. **Therefore, one can calculate and/or imagine how much nutrients are stored and hold** unto by a soil, which has 50, 100, 200, 300 or more ME cationic exchange capacity, based on the above scientific formula.

10. **Nutrients are exchanged with Hydrogen,** the plant roots carry Hydrogen (as part of its moisture) and therefore the plant can grow, produce grain, fruit, etc. receiving exchanged nutrients from the soil colloids.

11. **Clays and organic matters are negatively charged,** therefore attract POSITIVE, cationic nutrients, storing and holding them until demand is made for them. Plant roots manufacture different acids to chealate or claw out the nutrients they need and call for.

12. Those 4 major cations, **Calcium, Magnesium, Potassium and Sodium,** they have a lot to do with pH management, maintenance of **hormone and enzyme systems,** healthy plants, healthy microbial lives, and many other beneficial factors. This is why the high cationic exchange capacity or high total exchangeable cationic **humus is required for bioremediation and assistance of biological transmutation.**

JYRHK COMPOST AND HUMUS QUALITY RATING SYSTEM BY CHEMICAL ANALYSIS

Processing Time	Aging Time	Trade Secret Substances Initially	Maximum Cationic Exchange Curing	Compost Custom Rate,	Humus ME Quality	Life Exp. Quality Years	Leachableing & Curing Nutrients	
		Special	Water	Non-Soluble				
Compost Manufacturing (Includes most of the composting technologies nation-wide)								
1-3 weeks	8	None	None	N.A.	5	C/3	NA	1	Yes	No
1-4 weeks	12-16 wks	None	None	N.A.	15	C/2	NA	2	Yes	No
4-5 weeks	20-52 wks	None	None	N.A.	25	C/1	NA	3	Yes	No
EKOTEK Humus Manufacturing										
8 weeks	8 weeks	Yes	Yes	Yes	250	NA	H/B 5	years	No	Yes
8 weeks	16 weeks	Yes	Yes	Yes	350+	NA	H/A 7	years	No	Yes

EKOTEK Bioremediation utilizes microbes and other natural ingredients in an organic-mineral environment.

Custom-made substances are made to be contaminants-specific, site-, and climatic conditions-specific, as required.

EKOTEK Waste Processing Technology, Inc. Stevensville, MT, 59870-6388

EKOTEK/Business/Science/RatingsCH/872008

MODESTO CALIFORNIA STUDY

A authorities desire to lower air pollution created by the dairy farm industry. These are concentrated in two regions mainly, Chino Basin, East of Los Angeles, (300,000 cows), and in the Central Valley, known as San Joachim Valley, with 1.5 million heads.

EKOTEK Waste Processing Technology has the answer to reduce and eliminate those polluting emissions, which are making those air basins so toxic for human beings.

The following parameters are considered:

1. Dairy cattle produces about 13.4 gallons of wastes daily, amounting to about 78 lbs of total weight. Out of that volume and/or weight 33 lbs is liquid (urine). Total DRY WEIGHT of manure is about 10.7 lbs solids/day.

2. Total annual solids per dairy cow is 365 days x 10.7 lbs = 3,906 labs or 2 tons per year/head.

3. Given 300,000 head of cows x 2 tons = 600,000 tons of solid DRY MATTER annually.

4. Given 1,500,000 head of cows x 2 tons = 3.0 million tons of DRY SOLID WASTE annually.

5. The primary polluting substance is the Ammonium (NH4N), which is originating from the urine on one hand, and rotting (an-aerobically) cow manure after few days out in the open.

6. The total Nitrogen per cow is about 0.51 lb daily, out of which 3.4% is Ammonium. This ammonium is the volatile part of the Nitrogen, a gas, which if not captured and held in combination with some substance and processed will get into the air, and greatly pollute the environment. It is the immediately available part of the Nitrogen Family, which is extremely valuable asset within the fertilizing aspect of any substance, there is the subject of EKOTEK Waste Processing Technology.

7. Per 1,000 cows the daily Nitrogen production is 1,000 x 0.51 lbs = 510 lbs of N.

8. Per 1,000 cows the daily Ammonium production is 3.4% of 510 lbs = 17.4 lbs

9. The main issue is intercept the natural cycle of this Ammonium Nitrogen to escape into the air. Since the main source of Ammonium is the urine, EKOTEK shall furnish certain amount of natural substances to absorb & adsorb this polluting waste, and hold it, till the actual EKOTEK Processing can take place in the nearby EKOTEK HUMUS Plant.

10. To intercept the Ammonium creation in the solid part of the dairy waste, another natural substances will be provided, and like above, it has to be rudely mixed to avoid malodor generation.

11. Volume and timing and application of those natural substances will be given by the EKOTEK Manual provided for those waste generators contracted with to be part of this waste to resource management system.

12. The EKOTEK processing is also do not produce any malodor whatsoever, as we have documentations of available plants working over decades without any complaints.

13. It is estimated, that if Instructions of EKOTEK Program is followed properly 80-85% and/or up to 100% all malodor generation by Ammonia can be eliminated.

14. Malodors are very valuable fertilizing substances. It is absolutely un-economic to let Ammonia, Hydrogen-sulfate, or any other polluting gases to contaminate the air, when they can be captured by EKOTEK Waste Processing System.

Since Chino Basin has 300,000 cows and San Joachim Valley 1,500,000 the following Ammonium data are calculated:

1. Standard: Daily N output per cow is 0.51 lbs (per a 1,000 lbs animal). The Ammonia part is only 3.4%, therefore:
Per 1,000 animals 510 lbs of N is produced daily, Ammonium represents 17.4 lbs daily

2. Chino Basin has 300,000 animals, therefore 5,220 lbs Ammonia daily, or 952 tons per year.

3. San Joachim Valley has 1.5 million animals, producing 4,763 tons of Ammonia per year.

4. EKOTEK will have a certain compound (made up several natural substances) to be mixed with the animal waste at the livestock pen floor, and/or where this slurry type animal waste is collected daily. As stated earlier Nov. 28, 2007 e-mail, Item No. 1: The daily waste of a 1,000 lbs dairy animal is 78 lbs, amounting to 13.4 gallons of volume. Out of this total 33 lbs is urine.

5. When this EKOTEK Compound (let us designate it Compound A) is mixed with this slurry type waste stream, the malodor generation is stopped. The volume of this Compound A will be calculated, and tested for COMPLETE ELIMINATION of malodor. This way no volatile Ammonia, Hydrogen-Sulfate, etc. gases can be produced. This effective measure may be lasting for several months.

6. Slurry hauling trucks will be used to haul this waste into the EKOTEK Plant site, where other natural substances are stored for the proper mixing-blending for the humus manufacturing.

7. When the slurry truck arrives at the EKOTEK Plant, its content is embedded into additional natural substances to make sure that no malodor generation ever can take place.

8. EKOTEK personnel will visit and oversee the current waste management and the Compound A will be designed to be employed, such a way, that no malodor generation can take place.

9. Constant vigilance of EKOTEK over this Compound A application will assure, that no malodor shall be generated. Malodor is valuable N, Sulfur, etc. elements, which are needed for to make a final EKOTEK Humus a marketable product.

10. Compound A is formulated, that once properly applied, no matter of handling by the dairymen, truckers, etc. the malodor generation is eliminated.

ADDITIONAL INFORMATION

Ca Project

As discussed earlier, the following parameters are given below:

#1. Compound A, to be blended or mixed:
a. Calcium Carbonate, minimum #300 Mesh, 1000 lbs
b. Yakima Minerals #300 Mesh, 50 lbs
c. Humate, #300 Mesh, 5 lbs

(We may alter some of the ingredients after trial and error in field conditions)

#2. Given the required 50,000 tons of annual output of 15% moisture content EKOTEK-Humus, fortified with minerals, the following inputs are considered:

a. 10,000 cows manure wastes, averaging 2,000 lbs/year, = 20,000 tons (includes wet & solid wastes, in combination of other wastes to soak and utilize Moisture content, with evaporation during processing)
b. 60,000 tons of carbon-rich wastes (= about 240,000 cu yds in volume), shredded into 2" minus size, prior processing)
c. 20,000 tons of mineral blends (in different times of blending), of which

1. Compound A	18,000 tons (18,250 tons)
2. St. Helens volcanic ash	1,000 tons
3. Others not listed	500 tons
4. Basalt	400 tons
5. Sea minerals	100 tons

#3. Ammonium Elimination
a. Given 78 lbs of daily wet & solid wastes per cow, a starting application of Compound A is 10 lbs per day per cow.
b. 10,000 cows x 10 lbs per day = 100,000 lbs or 50 tons/day
c. Given 365 days per year = 50 tons x 365 = 18,250 tons/year

#4. How Much Compound A is required for 1,000 cows?
1,000 x 10 lbs = 10,000 lbs, that is 5 tons/day

DETAILED INFORMATION BOOK-Edited

SECTION E. FOLIAR NUTRITION

1. General Ideas on Foliar Fertilization

Walters & Fenzau summarizes the foliar application of fertilizing agents as sprays on the leaves, stems, and other parts of the plant:

a. The nutrients available to the plants are mobilized into the leaves. This is the chief purpose of the fertilization in the first place.

b. Incorporated into the regular cultural program, the foliar nutritional spray promotes and maintains a general vigor and better withstand stress.

c. The term foliar feeding is somewhat misleading: All living parts of the plant above ground can absorb nutrients; twigs, branches, buds, fruits, flowers, and steam.

d. Foliar nutrients are readily available and more easily utilized by the plant then, when applied to the soil.

e. Foliar nutrients increase the rate of photosynthesis and by so doing stimulate and increase nutrient absorption by roots.

Since nutrient ions move by the speed of light, sudden qualitative changes can be observed after foliar nutrient application. The cooperation between the root feeding and leaves is on 24/7 and additional sugar complexes adding to the root system, in turn the expanded roots can better feed the plant and its harvestable products.

2. EKO Foliar System

In the EKO application this general idea of foliar feeding goes even further. As EKO Humus Tea is produced as a byproduct of waste processing, this liquid is utilized in the foliar nutrition application.
The EKO Humus Tea is the condensate from high temperature humus manufacturing for several weeks. As the hot moist air is removed by negative aeration, as it cools it condenses its moisture content and collected into an underground tank system (UGTS). From there it may be piped to the Nutrient Enhancement Center, where additional additives improve its nutrient content.

EKO Laboratory verifies the elemental content and the Marketing Dept. can decide what other nutrients needed for different crops at different times of their growth. Several proprietary substances are considered, as the agricultural scientist will determine, and the content and rate of application of this EKO Foliar Nutrition Spray product for different plants.

The central issue is a complete 92 elements provision. The proprietary minerals biologically active on our planet contain perfectly efficient forms of Nitrogen, Phosphorus and Potash, long with Calcium and Magnesium. All the proprietary minute trace elements are also present. Combined, the whole cafeteria in a buffet style, All trace minerals are available as keys to the enzyme activity of the plant. Many acts as catalysts, enabling other

biological activities, like biological transmutations take place.
SECTION E: Foliar Nutrition continued…

Since catalysts are not used up in those chemical processes they promote, it is understandable that small amounts can make a big difference. Especially, if the soil is depleted, the foliar application can supply the required element. Certain biological transmutations are taking place in the springtime (Magnesium levels are highest in spring, since chlorophyll production is required). This may be the most appropriate FIRST TIME FOR FOLIAR APPLICATION.

During the summer months the biological transmutation is Potash-based, (Kalium), where it acts as a heat sink. SECOND TIME FOLIAR APPLICATION should be centered on available Potash.

The THIRD TIME OF FOLIAR APPLICATION IS BEFORE FRUITING TIME, when also Potash is required for fruit production, and for trees for winter hardening.

Each of these foliar feedings should be designed with other factors as well, as soil-, plant,-, and timing of the growth cycle requires certain elements.

Here a note has to be inserted, as Justus von Liebig stated 150 years ago, that growth and yield of plants are governed not by the macronutrients in abundant supply, but by the trace minerals in least supply. This in the scientific literature is known as the Liebig-Mitscherlich Law, The Law of Minimum. Or in other words it is the LAW OF A LITTLE BIT.

How to know, what nutrients may be missing? By careful spectrographic analysis, however, it may not always be available on short notice. Therefore, we provide the WHOLE BUFFET of trace minerals, combining the EKO Humus Tea ingredients, and possibly other substances.

EKOTEK Technologies Resource Conversions New Paradigm

What's old is new again:
The throw away or disposal and buy new mentality offers huge benefits to EKOTEK Technologies and their concepts programs.
Wastes are a problem because of the profit margins that are the first focus of waste disposal. What is the cheapest way to convert wastes into a less toxic or less desirable material becomes the most important effort in waste management. Seldom is the focus on waste as a resource for new product production.

Raw Resource Materials is a basic elemental industry requirement for manufacturing:
Raw resource materials may first come from mining, drilling and/or extraction from natural environment deposits. Minerals, fuels, oils, fiber, carbon, water, air/oxygen, and etc all become the first costs of manufacturing. Many of these basic raw materials supply are industrialized businesses. The raw materials that are utilized for basic manufacturing, after their extraction, are then processed into a form that is suitable for refined product uses. At a minimum there are usually three basic steps from extraction to finished products.

EKOTEK eliminates one step in the three step process of basic manufacture:
EKOTEK bypasses the extraction process and begins with the processing of the raw materials. The reduction steps, or processes, that are linked to mining, drilling, and extraction, are also eliminated by EKOTEK.

Waste is the basic Raw Resource for EKOTEK Technologies:
Step one for EKOTEK is waste conversion processing of the Raw Resource. This is usually the second step of the three steps of manufacture for other industry.

Waste is the new Raw Resource of value:
EKOTEK processes wastes into high quality materials for many basic industrial and commercial manufacturing market uses. Foods, Fuels, reclamation, nutrition and health, environmental impact reductions, and positive economy impacts, are all basic areas EKOTEK focuses on.

RESOURCEFUL_RESOURCE'S _RECYLING (3 R's)
The "3R's describes EKOTEK Technologies basic business in its lowest level of accomplishments.
Resourceful-EKOTEK responds quickly to today's environmental and health problems.
Resources-EKOTEK welcomes wastes as a basic raw resource for their conversion process.
Recycling-EKOTEK maximizes recycling by enhancing wastes into valued products.

The supply of wastes for use as a Raw Resource in the US far exceeds the demand, and we own it and control it. When waste conversion is used as a raw resource, it is by far one of the cheapest or least expensive raw resource's we have, and it is good for the global warming and positives environmental impacts.

GLOBAL HEALTH-NEW OPPORTUNIIES
Greening the waste stream

Undesirable to highly desirable conversion:
Natural based wastes are attractive recycling resources needed for new nutrition paradigms. Most Raw Resource materials are lacking in complex make up and require considerable processing and blending to become usable for production of finished products. The processing and blending generally drive costs up substantially.
EKOTEK waste conversions require far less blending and much of the processing is accomplished through natural transformation requiring little or no energy from man made origin. At the end of processing of EKOTEK processing, there is a finished product. The basic finished product can be utilized as is or used for additional specialized products.

Global Health encompasses a huge number of factors:
Warming-Energy consumption, Maximizing land use, Mineral resource extraction and depletion cycles, Manufacturing emissions and residues, Synthetic refinements, Excessive

processing, Reductions in basic content, Hybridizing of plant life, Shorten maturity of food stocks, Increased use of pesticides –fungicides-herbicides, etc

Global warming is too narrowly focused.

Global health is where global warming should be focused. Global Health is far more costly than global warming by itself. Global warming is only a small part of the world's problem today and more importantly in the future.
Food supply is as basic as it gets. Soils and the materials we apply to the soils directly and indirectly effect and affect the health of the world populations. The warming only runs the bill up by economic impacts seen through the weather impacts. The cost of global health is a stealth factor not readily visible to the average person compared to the weather factors from global warming.
World health is by far more impacted by some of the causes of global warming. It is the linked causes to global warming that is most devastating to our future out look world wide.

Raw Resource depletion is usually associated with oil and its supply:

The old axiom-God only made so much land is truer than imagined. As we deplete our raw resources in addition to oil, we also compound the problem by causing great damage to the environments. We expend huge amounts of energy to extract our raw resources, causing global warming, as well as negative global health problems. Coal is an excellent example of global warming, but also affecting health, and the resulting devastation to the environment.

Our wastes are the most valuable, abundant, available, and non depleting:

Our wastes are readily available to our population centers, require no energy to extract, and cost far less if utilized instead of disposed of. We expend energy to dispose of our wastes, and we pay to rid our selves of wastes. We know of no other raw resource for manufacture of materials and products that we do not have to pay considerable prices for the material, fuel to get it someplace and for processing to a level of usefulness.
By GREENING OUR WASTE MATERIALS we can positively impact world Global Health.

Appendix Section 4

YYRHQ	MINERALS FOR THE GENETIC CODE				COMPARISON OF MINERAL CONTENTS							Page 1
		LETTUCE				SPINACH				DANDELION		
#	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?
1	Potassium	121,800	1	130	Potassium	69,077	12	130	Potassium, root	75,000	8	130
2	Nitrogen	54,000	5	45	Nitrogen	45,700	7	45	Potassium, leaf	27,569	52	130
3	Calcium	19,140	29	33	Magnesium	11,000	4	142	Chlorine	22,000	1	48
4	Sodium	18,560	5	92	Sodium	10,669	8	92	Calcium	21,000	23	33
5	Phosphorus	13,920	4	113	Chlorine	6,835	4	48	Sodium, leaf	5,278	18	92
6	Magnesium	8,700	6	147	Phosphorus	6,232	50	113	Iron, leaf	5,000	1	117
7	Sulfur	3,800	20	76	Sulfur	5,700	9	70	Phosphorus, leaf	4,583	76	113
8	Titanium	870	1	35	Silicon	855	12	44	Magnesium	4,050	37	147
9	Silicon	800	13	44	Manganese	485	4	29	Phosphorus, root	3,620	90	113
10	Strontium	580	2	43	Iron	384	51	117	Sulfur	3,300	22	76
11	Chlorine	395	25	48	Aluminum	270	21	22	Magnesium, leaf	2,500	72	147
12	Boron	350	1	39	Rubidium	90	1	49	Magnesium, root	1,570	106	147
13	Manganese	240	9	29	Copper	24	26	35	Sodium, root	1,130	51	92
14	Iron	176	81	117	Zinc	24	21	103	Iron, root	960	19	117
15	Copper	29	18	35	Fluorine	6	4	25	Aluminum	656	12	22
16	Lanthanum	20	2	14	Cadmium	5	4	9	Titanium	330	2	35
17	Vanadium	20	2	16	Bromine	4	23	28	Manganese	130	20	29
18	Chromium	20	12	29	Lead	3	23	38	Boron	125	7	28
19	Yttrium	9	2	3	Strontium	1	43	43	Strontium	120	9	43
20	Fluorine	8	1	25	Iodine	1	13	35	Bromine	80	5	28
21	Lead	6	12	38		**157,365**			Cobalt	80	14	18
22	Cadmium	4	5	5		Source:			Chromium, leaf	50	2	29
23	Lithium	3	3	25	**Minerals for the Genetic Code**, by Charles				Rubidium	50	5	41
24	Molybdenum	2	16	20	Walters, pp. 303, Acres USA, Austin, TX.				Silicon	47	43	44
25	Silver	1	3	21	*Sourcing of Elements*, pp. 185-288				Zinc, plant	19	34	103
26		**243,454**							Tin	13	12	37
27									Zinc, root	12	64	103
28	JCH arranged the mineral contents of these vegetables from the above source.								Selenium	9	21	29
29	Originally, they are derived from the database of Dr. James A. Duke, Phytochemical								Chromium, root	9	28	29
	and Ethnobotanical Databases, Fulton, MD, 20759, www.ars-gin.gov/duke. [USDA]									**179,290**		

Rank refers to the relative standing of the mineral content within its mineral listing. Example: Selenium in Dandelion is 9 ppm, it is the 21st out of 29 other vegetables selected. More listed in the above publication, but for this study 29 botanicals were selected. The selection by JCH is based on the relative importance of a botanical specie for agricultural food chain cultivation.

JCH, Excel/Business/Science/mineralsxls.xls/12202007 | Dr. Joseph C. Horvath, Stevensville, Mt, 59870-0880 | jjvalleyview@imt.net | **12.26.07**

Appendix Section 4

	YYRHQ	MINERALS FOR THE GENETIC CODE				COMPARISON OF MINERAL CONTENTS					Page 2
		TOMATO			BELL PEPPER				CUCUMBER		
#	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?
1	Calcium	60,800	1	33	Potassium	35,000	39	130	Nitrogen	80,000	1	45
2	Potassium	58,800	15	130	Nitrogen	23,330	18	45	Potassium	72,500	10	130
3	Nitrogen	23,330	19	45	Phosphorus	3,885	86	113	Aluminum	21,000	1	22
4	Phosphorus	8,400	21	113	Sulfur	2,440	27	76	Phosphorus	12,600	6	113
5	Sodium	6,600	16	92	Magnesium	2,319	75	147	Magnesium	7,000	14	147
6	Magnesium	6,000	22	147	Sodium	625	71	92	Sulfur	5,250	10	76
7	Sulfur	2,330	28	76	Bromine	111	2	28	Silicon	1,000	9	44
8	Aluminum	1,700	3	22	Copper	20	31	35	Sodium	714	64	92
9	Iron	800	25	117	Zinc	20	26	103	Iron	420	42	117
10	Chlorine	510	20	20	Titanium	16	15	35	Manganese	98	29	29
11	Strontium	140	8	43	Molybdenum	15	2	20	Strontium	98	12	43
12	Titanium	140	5	35	Strontium	12	26	43	Copper	42	7	35
13	Copper	100	1	35	Rubidium	10	30	44	Zinc	42	7	103
14	Manganese	100	27	29	Tin	5	27	37	Rubidium	19	20	44
15	Zinc	100	1	103	Lead	2	27	38	Titanium	18	13	35
16	Boron	96	12	39	Fluorine	1	25	25	Lead	3	24	38
17	Lead	60	3	38	Silver	1	13	21	Molybdenum	3	13	20
18	Rubidium	22	16	44	Lithium	1	18	25	Selenium	3	27	29
19	Molybdenum	6	8	20	Totals:	**67,813**			Lithium	1	16	25
20	Vanadium	6	4	16					Silver	1	9	21
21	Yttrium	6	3	3					Totals:	**200,812**		
22	Cadmium	2	7	9								
23	Fluorine	2	19	25	*The original source of the USDA Agricultural Research Service (USDA ARS) may*							
24	Silver	2	1	21	*have these information and database from conventional (chemically fertilized) fields.*							
25	Lithium	1	10	25	*Therefore, these tabulation may serve a useful comparison with alternative modes*							
	Totals:	**170,053**			*of agricultural production.*							
	NOTE: Source & notes are listed on Page One.											
	Additional note:		In the column of PPM no fraction is listed, therefore 3 = 2.5 and above, and 1.4 = may be 1.									
			Also, Trace mineral amounts are listed as 1 PPM.									
	JCH, Excel/Business/Science/mineralsxls.xls/12202007				Dr. Joseph C. Horvath, Stevensville, MT, 59870				jjvalleyview@imt.net			**12.26.07**

Appendix Section 4

	YYRHQ	MINERALS FOR GENETIC CODE					COMPARISON OF MINERAL CONTENTS						Page 3
		BEANS					PEA					LENTIL	
#	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	
1	Nitrogen	41,000	7a	45	Nitrogen	50,000	6	45	Nitrogen	48,000	6a	45	
2	Potassium	21,070	74	130	Potassium	15,830	96	130	Potassium	10,440	123	130	
3	Calcium	18,000	32	33	Phosphorus	6,250	48	113	Phosphorus	5,275	62	113	
4	Phosphorus	5,880	53	113	Sulfur	2,300	29	76	Magnesium	1,280	117	147	
5	Magnesium	3,430	48	147	Magnesium	1,700	98	147	Sulfur	1,220	44	76	
6	Silicon	1,200	8	44	Chlorine	500	18	48	Chlorine	636	17	48	
7	Aluminum	1,050	6	22	Silicon	59	40	44	Iron	106	114	117	
8	Iron	147	92	117	Bromine	12	17	28	Zinc	9	82	103	
9	Sulfur	137	74	76	Rubidium	10	34	44	Iodine	1	28	35	
10	Boron	60	26	28	Zinc	10	76	103	Totals:	**66,967**			
11	Strontium	34	21	43	Molybdenum	3	12	20					
12	Bromine	20	10	28	Fluorine	1	25	25	Source and Notes are listed on				
13	Zinc	15	51	103	Iodine	1	34	35	Page One above.				
14	Molybdenum	14	5	20	Totals:	**76,676**							
15	Rubidium	7	37	44									
16	Lithium	2	4	25									
17	Fluorine	2	14	25									
18	Silver	1	8	21									
19	Totals:	**92,069**											
23													
24													
25	The original source of the USDA Agricultural Research Service (USDA ARS) may have these information and database from conventional												
26	chemically fertilized fields. Therefore, these tabulations may serve a useful comparison with alternative modes of agricultural production.												
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Appendix Section 4

	YYRHQ	MINERALS FOR GENETIC CODE				COMPARISON OF MINERAL CONTENTS					Page 4
		APPLE				PEACH				PEAR	
#	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of	Minerals	PPM	Rank	Out of ?
1	Potassium	12,160	114	130	Potassium	22,072	71	130	Potassium	11,250	122	130
2	Nitrogen	4,000	43	45	Nitrogen	13,075	34	45	Nitrogen	3,000	44	45
3	Iron	123	104	117	Mg, seed	3,810	44	147	Magnesium	1,100	121	147
4	Boron	110	8	28	Aluminum	1,050	7	22	Sodium	407	86	92
5	Silicon	70	38	44	Mg, fruit	850	136	147	Sulfur	300	70	76
6	Lead	64	2	38	Sulfur	700	62	76	Boron	82	17	28
7	Sulfur	23	76	76	Sodium	366	89	92	Rubidium	20	19	44
8	Rubidium	10	31	44	Boron	150	5	28	Strontium	19	22	43
9	Strontium	8	28	43	Strontium	45	18	43	Titanium	7	21	35
10	Titanium	3	27	35	Copper	30	15	35	Lead	1	34	38
11	Fluorine	2	13	25	Titanium	30	10	35	Lithium	1	24	25
12	Lithium	1	25	38	Zinc, fruit	30	13	103	Silver	1	21	21
13	Silver	1	15	21	Zinc, seed	10	77	103	Vanadium	1	7	16
14	Totals:	**16,575**			Lead	3	22	38	Totals:	**16,189**		
15					Molybdenum	1	19	20				
16					Lithium	1	15	25				
17					Silver	1	5	21				
					Totals:	**42,224**						

Source and Notes are listed on Page One and Two.

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	YYRHQ	MINERALS FOR GENETIC CODE					COMPARISON OF MINERAL CONTENTS						Page 5
		BEETS					CABBAGE					ONION	
#	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	
1	Potash, root	50,000	19	130	Potassium	42,500	28	130	Potassium	22,164	70	130	
2	Potash, leaf	61,798	14	130	Nitrogen	37,500	12	45	Nitrogen	17,690	27	45	
3	Phosphorus	45,580	1	113	Calcium	19,180	28	33	Sulfur	4,075	16	76	
4	Nitrogen	35,830	13	45	Sulfur	8,750	4	76	Phosphorus	4,038	85	113	
5	Sodium	6,705	15	92	Phosphorus	6,500	40	113	Sodium	2,052	37	92	
6	Magnesium	4,200	35	147	Sodium	4,589	21	92	Magnesium	1,230	118	147	
7	Sulfur	2,000	33	76	Magnesium	2,786	65	147	Iron	436	39	117	
8	Aluminum	420	14	22	Strontium	870	1	43	Aluminum	385	16	22	
9	Iron, leaf	392	50	117	Titanium	203	3	35	Strontium	162	6	43	
10	Iron, root	165	85	117	Iron	171	83	117	Silicon	75	37	44	
11	Silicon	83	35	44	Boron	145	6	28	Bromine	15	16	28	
12	Boron	80	18	28	Molybdenum	87	6	20	Titanium	11	17	35	
13	Strontium	70	155	43	Zinc	87	2	103	Zinc	11	67	35	
14	Rubidium	32	7	44	Copper	43	6	35	Rubidium	7	38	44	
15	Zinc	17	40	103	Bromine	32	6	28	Molybdenum	2	14	20	
16	Bromine	16	14	28	Yttrium	29	1	3	Lead	1	33	38	
17	Titanium	10	18	35	Rubidium	28	11	44	Lithium	1	19	25	
18	Lead	4	21	38	Lanthanum	20	1	14	Silver	1	19	21	
19	Tin	3	32	37	Vanadium	15	3	16	Totals:	**52,356**			
20	Lithium	1	13	25	Lead	6	14	38					
21	Totals:	**207,406**			Fluorine	3	12	25					
22					Lithium	1	7	25					
23		Source:			Silver	1	2	21					
24	See Page One & Two for details.				Totals:	**123,546**							
25													

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Appendix Section 4

	YYRHQ	MINERALS FOR GENETIC CODE				COMPARISON OF MINERAL CONTENTS					Page 6
		PARSLEY				CARROT				GARLIC	
#	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?
1	Potassium	53,833	18	130	Potassium	46,360	21	130	Potassium	13,772	110	130
2	Nitrogen	40,700	8	45	Nitrogen	20,000	23	45	Phosphorus	5,220	63	113
3	Phosphorus	6,425	44	113	Sodium	9,504	9	92	Magnesium	1,210	119	147
4	Magnesium	5,577	25	147	Phosphorus	5,090	69	113	Sodium	559	74	92
5	Sodium	5,569	17	92	Sulfur	1,635	37	76	Iron	129	101	117
6	Sulfur	4,700	14	76	Magnesium	1,480	89	147	Cobalt	100	12	18
7	Silicon	1,425	4	44	Aluminum	1,050	5	22	Selenium	16	15	25
8	Strontium	396	3	43	Iron	300	61	117	Chromium	15	21	29
9	Aluminum	390	15	22	Strontium	148	7	43	Zinc	10	79	103
10	Manganese	375	6	29	Silicon	91	33	44	Tin	6	25	37
11	Iron	250	66	117	Titanium	30	9	35		**21,037**		
12	Rubidium	65	2	44	Zinc	18	37	103				
13	Boron	54	28	28	Rubidium	13	26	44		SOURCE:		
14	Bromine	21	9	28	Bromine	9	19	28				
15	Molybdenum	14	4	20	Tin	3	31	37	Please, refer to Pages One & Two			
16	Zinc	12	62	103	Lead	2	28	38				
17	Fluorine	8	2	34	Fluorine	2	16	25				
18	Lead	4	19	38	Arsenic	1	3	18				
19	Titanium	2	33	35	Lithium	1	14	25				
20	Lithium	1	9	25		**85,737**						
21	Silver	1	6	21								
		119,822										
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	YYRHQ	MINERALS FOR GENETIC CODE				COMPARISON OF MINERAL CONTENTS						Page 7
		NETTLE, as a Herb				KELP, as a Herb				Milk Thistle, as a Herb		
#	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?
1	Sodium	491,400	1	92	Sodium	56,100	3	92	Phosphorus	7,060	35	113
2	Nitrogen	55,555	3	45	Calcium	30,400	11	33	Magnesium	4,030	39	147
3	Potassium	37,280	36	130	Potassium	21,100	73	130	Iron	1,060	14	117
4	Calcium	33,000	6	33	Magnesium	8,670	7	147	Aluminum	267	22	22
5	Magnesium	8,600	8	147	Iodine	5,400	1	35	Selenium	171	2	29
6	Phosphorus	6,800	39	113	Phosphorus	2,490	110	113	Manganese	147	19	29
7	Sulfur	6,665	5	76	Aluminum	631	13	22	Tin	42	1	37
8	Silicon	6,500	1	44	Bromine	150	1	28	Cobalt	41	18	18
9	Chlorine	2,700	8	48	Lead	91	1	38	Chromium	23	10	29
10	Iron	418	43	117	Silicon	76	36	44		**12,841**		
11	Aluminum	345	17	22	Arsenic	68	1	3				
12	Manganese	172	17	29	Tin	24	4	37		**Source:**		
13	Bromine	110	3	28	Selenium	17	13	29		Please, refer to Pages One & Two		
14	Tin	27	2	37		**125,217**						
15	Selenium	22	12	29								
16	Rubidium	18	21	44								
17	Zinc	15	52	103								
18	Fluorine	8	3	25								
19	Lead	6	13	38								
		649,641										

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YYRHQ | MINERALS FOR GENETIC CODE | COMPARISON OF MINERAL CONTENT | Page 8

#	Minerals	GRAPE PPM	Rank	Out of ?	Minerals	STRAWBERRY PPM	Rank	Out of ?	Minerals	RED & WHITE CURRANTS PPM	Rank	Out of ?
1	**Potassium**	**24,640**	**62**	**130**	Potassium	15,880	95	130	Potassium	21,250	72	130
2	**Nitrogen**	**7,220**	**39**	**45**	Nitrogen	10,000	37	45	Nitrogen	20,000	25	45
3	**Magnesium**	**2,310**	**76**	**147**	Phosphorus	3,191	95	113	Phosphorus	3,310	92	113
4	**Sulfur**	**888**	**56**	**76**	Sodium	1,915	43	92	Sulfur	1,782	36	76
5	**Sodium**	**454**	**83**	**92**	Magnesium	1,545	108	147	Magnesium	935	130	147
6	**Iron**	**154**	**89**	**117**	(Fragovia)				Chlorine	910	14	48
7	**Strontium**	**39**	**20**	**43**	Sulfur	1,270	42	76	Silicon	312	20	44
8	**Zinc**	**12**	**65**	**103**	Magnesium	880	132	147	Boron	80	20	28
9	**Lead**	**8**	**20**	**44**	(Guava)				Rubidium	23	12	44
10	**Rubidium**	**6**	**40**	**44**	Silicon	270	22	44	Zinc	7	99	103
11	**Lithium**	**1**	**21**	**25**	Boron	160	4	28	Fluorine	4	177	25
12	**Silver**	**1**	**16**	**21**	Manganese	125	21	29		**48,613**		
13		**35,733**			Iron	100	115	117				
14					Zinc	17	41	103	**BLACK CURRANTS**			
15					Rubidium	7	39	44	Potassium	21,110	72a	130
16					Iodine, plant	1	10	35	Nitrogen	12,775	35	45
		Source:				**35,361**			Magnesium	1,720	97	147
	Please, refer to Pages One & Two for details								Sulfur	1,385	40	76
									Silicon	220	25	44
									Iron	108	112	117
									Boron	64	24	28
									Rubidium	28	10	44
									Zinc	7	98	103
									Fluorine	3	9	25
										37,420		

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Appendix Section 4

YYRHQ — MINERALS FOR GENETIC CODE — COMPARISON OF MINERAL CONTENT — Page 9

	CORN				POTATO				CAULIFLOWER			
#	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?
1	Nitrogen*	22,957	22a	45	Potassium	30,000	49	130	Nitrogen, leaf	72,500	2	45
2	Potassium	11,450	119	130	Nitrogen	17,000	28	45	Calcium, leaf	54,247	3	33
3	Phosphorus	4,066	84	113	Magnesium	4,250	33	147	Potassium, flower	49,080	20	130
4	Magnesium	1,600	105	147	Phosphorus	4,200	81	113	Phosphorus	7,375	29	113
5	Sulfur	1,140	47	76	Sulfur	1,900	35	76	Sodium, leaf	3,091	27	92
6	Sodium	757	61	92	Sodium	323	91	92	Magnesium, leaf	3,072	57	147
7	Chlorine	330	26	48	Iron	128	102	117	Sodium, flower	2,300	34	92
8	Aluminum	275	20	22	Strontium	60	16	43	Magnesium, flower	2,250	80	147
9	Titanium	63	7	35	Boron	30	7	28	Silicon, flower	125	32	44
10	Copper	20	35	35	Rubidium	23	13	44	Iron, flower	122	105	117
11	Strontium	14	25	43	Titanium	17	14	35	Iron, leaf	109	111	117
12	Lead	14	5	38	Chlorine	16	47	48	Boron, leaf	85	16	28
13	Molybdenum	6	7	20	Zinc	14	56	103	Boron, flower	76	21	28
14	Tin	2	36	37	Lead	4	18	38	Copper, leaf	52	4	35
15	Vanadium	1	6	16	Molybdenum	2	15	20	Zinc, leaf	52	4	103
16	Cadmium	1	9	10	Iodine	1	33	35	Rubidium, flower	11	27	44
17	Iodine	1	32	35	Lithium	1	22	25	Molybdenum, leaf	4	11	20
18	Lithium	1	23	25	Silver	1	17	21	Fluorine, flower	3	11	25
19	Silver	1	19	21		**57,970**			Lead, leaf	1	36	38
		42,699								**194,555**		

Source:

Please, refer to Pages One & Two

*USDA Agricultural Research Service (ARS) lists Protein content at a high of 132,000 PPM level. Considering 575 ppm per Nitrogen, that is 22,957 ppm Nitrogen content.

NOTE: Broccoli is very much like cauliflower in mineral contents. USDA ARS does not have any reference material on Broccoli's mineral contents, as of Dec. 2007.

BRUSSELS-SPROUTS

Potassium	29,343	50	136
Phosphorus	4,927	72	113
Sodium	1,990	39	92
Magnesium	1,642	103	147
Iron	136	98	117
Boron	57	27	28
	38,095		

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	YYRHQ		MINERALS FOR GENETIC CODE				COMPARISON OF MINERAL CONTENT					Page 10
		Grains, seeds only!					*Special emphasis on Protein & Carbohydrate Contents*					
		WHEAT				**OATS**				**BARLEY**		
#	**Minerals**	**PPM**	**Rank**	**Out of ?**	**Minerals**	**PPM**	**Rank**	**Out of ?**	**Minerals**	**PPM**	**Rank**	**Out of ?**
1	Nitrogen	60,800	2a	45	Nitrogen	37,120	8a	45	Nitrogen	33,920	12a	45
2	Phosphorus	6,800	38	113	Phosphorus	10,200	9	113	Potassium	9,900	127	130
3	Magnesium	3,500	47	147	Potassium	8,900	129	130	Phosphorus	9,200	15	113
4	Sulfur	3,200	23	76	Sulfur	3,100	24	76	Magnesium	2,300	77	147
5	Sodium	2,200	35	92	Magnesium	2,400	61	147	Sulfur	200	71	76
6	Chlorine	1,800	10	48	Chlorine	1,900	9	48	Manganese	120	22	29
7	Iron	120	106	117	Sodium	1,600	44	92	Iron	100	116	117
8	Zinc	17	43	103	Iron	300	60	117	Copper	20	32	35
9	Lead	2	32	38	Manganese	204	14	29	Zinc	20	27	103
		78,439			Copper	26	21	35		**55,780**		
	Carbohydrates	610,000			Zinc	26	16	103	Carbohydrates	868,000		
						65,776						
					Carbohydrates	775,000						
		RYE				**Source:**				**RICE**		
	Nitrogen	31,440	14a	45		Please, refer to Pages 1 & 2 above.			Nitrogen	13,600	31a	45
	Potassium	5,099	130a	130					Phosphorus	5,588	57	113
	Magnesium	1,740	135	147					Sodium	939	57	92
	Sulfur	1,550	60	76						**20,127**		
	Calcium	685	33a	33					Carbohydrates	892,000		
	Iodine	1	26	35		**Special Notes:**						
		40,515			a.	Nitrogen data were not given in the original source. It was found in				the USDA ARS Database as		
	Carbohydrates	824,720				Protein. Since the standard conversion factor is 625 ppm Protein equals 1 ppm of Nitrogen, the above						
						Nitrogen figures were calculated by this simple calculation.						
	Protein to N conversiton factor is 6.25 x N is published by				b.	Grains are of the family of grass. They pick up all elements, minerals from the soil, if available.						
	Prof Pomeranz, **Modern Cereal Science & Technology,**				c.	Greatest volume of these seeds of grains is not moisture as in vegetables, fruits, berries, but						
	VCH Publishers, NY NY, 1987, Wash. State University,					carbohydrates. Therefore, special search from the USDA ARS Database resulted in these numbers.						
	Pullman, WA. 99164-2032, page 52, Table 4-13.				d.	Grains are not significant source of minerals, as it can be seen in the ranking levels within their groups.						
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	YYRHQ	MINERALS FOR THE GENETIC CODE					COMPARISON OF MINERAL CONTENTS					Page 11
	Selected Herbs, useful also in agricultural settings, since their minerals derived from Horizon B & C for benefit of A, or root zone.											
		BURDOCK			CHICKWEED				PURSLANE			
#	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?	Minerals	PPM	Rank	Out of ?
1	Potassium	16,800	89	130	Chlorine	12,936	2	48	Potassium	81,200	5	130
2	Magnesium	5,370	26	147	Magnesium	5,290	27	147	Calcium	20,800	24	33
3	Phosphorus	4,370	78	113	Phosphorus	4,480	77	113	Magnesium	18,700	1	147
4	Sodium	1,520	45	92	Sulfur	3,828	19	76	Phosphorus	7,740	24	113
5	Iron	1,470	9	117	Iron	2,530	2	117	Sodium	7,400	13	92
6	Silicon	225	24	44	Sodium	1,470	47	92	Chlorine	7,300	3	48
7	Cobalt	120	8	18	Manganese	153	18	29	Sulfur	6,300	6	76
8	Copper	29	17	35	Cobalt	121	7	18	Iron	467	37	117
9	Zinc	29	15	103	Chromium	11	25	29	Zinc	19	33	103
10	Tin	21	8	37	Selenium	4	25	29		**149,926**		
11	Chromium	20	11	29		**30,823**						
12	Selenium	14	18	29								
		29,988										
										PIGWEED		
	Source:	Please, refer to Pages 1 & 2 above.							Potassium	73,503	9	130
									Calcium	53,333	4	33
	Note:	Prior the utilization of herbicides the cultivation of agricultural fields resulted							Phosphorus	10,082	10	113
		in the incorporation of the minerals of these "weeds" as they were mowed.							Sodium	2,406	32a	92
		When dandelion is added to these four "weeds" considerable amounts of							Iron	1,527	6	117
		useful minerals were utilized.								**140,851**		
		Since the current conventional (chemical) agricultural practices do not replenish these minerals, the products of the farmers,										
		orchadists, etc. lack them for the detriment of the quality. Therefore, mineral supplement industry has been flourishing, but										
		one can wonder, can they furnish the same minerals, which are not available anymore by the current method ?										
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Appendix Section 5
Hanford Reservation Land Washington State-Soil errosion zones for humus application estimates-Draft 4/2/09

Zone	Sq miles	Net sq miles zone 1&2 deducted	Net acres T=thousands	Inches depth Humus M=millions	Cubic yds Humus M=millions	Tons Humus	Years to produce humus	Cellulosic production Tons/million	Bio fuels Production Gal/million
1	10	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
2	20	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3	40	20	12.8t	4″	2.29m	0.89m	0.9	1.15m	38.4m
4	80	60	8.4t	3″	5.16m	2.07m	2.1	3.46m	115.2m
5	160	140	89.6t	3″	12.03m	4.81m	4.8	8.06m	268.8m
6	320	300	192.0t	2″	17.18m	6.87m	6.9	17.28m	576m
7	586	566	362.2t	2″	32.42m	12.96m	13	32.59m	1,086.6m

Production data is per annum Bio fuels can be ethanol, diesel, or alcohols in any combination
Section areas 1&2 are the center of the hanford production plants and clean up areas.

Sections 3 though 7 are erosion areas that can be used for crop and fuels production with wild life restoration sections strategically located. Section 7 is the most outer (extreme) area.
No till applications of humus are considered in the wild life sections.
Crop section humus applications will be tilled to a depth of 3 to 4 inches
All crop production is not required for bio fuels. Some crop portions will go to animal feeds, and some for bulking agents used in humus production.
Crop production is projected to be used minimally for three separate uses. Top growth for high nutrition animal feed.
one third for bio fuels. One third for bulking materials. Other uses may be paper pulp and/or man made wood product.

Estimated cost to apply humus to 128t acres $35ac/$9.8m
Estimated cost of humus for 128tt acres @ $200t/$56.0m
Estimated annualized cost to plant 128t acres in cellulosic grass @ $198.44ac/$56.6m
Estimated annual revenues for bio fuels only crop on 128t acres @ $1350ac/$378.0m
Estimated revenues for combination crops on 128t acres @ $3600ac/$1,008.m

Appendix Section 5

YYRHK	Tabulations of Bioremediation Information						Page #1
	Cometabolism for biodegradation of wastes, including heavy metals						5/15/06
1. Applied Biotechnology for Site Remediation						**Book Type**	**Page #**
By: Robert E. Hinchee, Daniel B. Anderson, F. Blaine Metting, Jr. & Gregory D. Sayles							
Lewis Publishers, Boca Raton, FL. 1994, pp.485,						hardcover	**485**
2. Biotreatment of Industrial and Hazardous Wastes							
By: Morris A. Levin & Michael A. Gealt							
McGraw-Hill, Inc. NY, NY, 1993, pp. 333						hardcover	**333**
3. Bioremediation Field Experience							
By: Paul E. Flathman, Douglas E. Jerger, & Jurgen H. Exner							
Lewis Publishers, Boca Raton, FL, 1994, pp. 548						hardcover	**548**
(Dedicated to Dr. R.S. Horvath, pioneering R&D in Cometabolism for biodegradation of wastes)							
4. Practical Environmental Bioremediation							
By: R. Barry King, Gilbert M. Long, & John K. Sheldon							
Lewis Publishers, Boca Raton, FL, 1992, pp. 149.						hardcover	**149**
5. Bioremediation, A Desk Manual for the Environmental Professional							
By: Dennis R. Schneider, Ph.D. and Robert J. Billingsley							
Cahners Publishing Company, 1990. pp. 97						hardcover	**97**
6. Bioremediation Engineering, Design & Application							
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7. Handbook of Bioremediation							
By: Norris, Hinchee, Brown, McCarty, Semprini, Wilson, Kampbell, Reinhard, Bouwer, Borden,							
Vogel, Thomas, & Ward;	Robert S. Kerr, US EPA Environmental Research Laboratory, &						
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8. Natural Systems for Waste Management and Treatment					(Second Edition)		
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10. Organic Soil Conditioning							
By: William R. Jackson, Ph.D.	JRC, POB 3577, Evergreen, CO. 80439				1993	hardcover	**958**
11. Biology of Industrial Microorganisms, by A.L. Demain & N.A. Solomon							
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12. BIOlogical TRANSmutations, Prof. C. Louis Kervran							
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13. Radioactivity of Milk, Meat, Cereals and Other Agricultural Products in Finland								
After the Chernobyl Accident in 1986. By Aino Rantavaara and Suvi Hauka, pp 110								
Finnish Centre for Radiation and Nuclear Safety, Helsinki, Finland								
14. On the role of Humic Substances in the Transport of Radionuclides								
By A. Salo & R. Saxen, Institute of Radiation Physics, Report # SFL-A020								
NOTE:	Long list of Reports are available from:							
	STUK Institute, Radiation & Nuclear Safety Authority, Finland							
	P.O. Box 14, Helsinki, Finland, FIN-00881							
15. Personal Communication from Dr. Lavrans Skuterud, Senior Research Scientist								
Dept. of Emergency Preparedness & Environmental Radioactivity								
Norwegian Radiation Protection Authority								
P.O. Box 55, Osteras, Norway, NO-1332								
Date: May 5, 2006, listing 9 (nine) special report on the Chernobyl fallout on								
Norwegian soil, animal herds, techniques, effectiveness & costs.								
16. All Things Considered in the Wake of Chernobyl Nuclear Accident								
By Siegfried Luebke, An Austrian organic farmer-scientist, describing how his								
compost-enriched vegetable business faired so well after the Chernobyl accident.								
while adjacent farmlands using conventional fertilizing agents could not withstand								
the nuclear fallout.								
Published by: Acres USA Magazine, December, 1989, pp. 8314 - 8318								
P.O. Box 91299, Austin, TX, 78709								
17. **Nuclear Waste News**, BPI, 951 Pershing Drive, Silver Springs, MD 20910-4464,								
April 11, 1991, on Page 145 reported that " Bacterium May Prove Key to Clean Up								
of Radioactively Contaminated Water", by Dr. Derek Lovley, Microbiologist,								
US Geological Survey, National Center Laboratories, Reston, VA. He reported that								
Bacterium GS-15, can remove uranium from water by changing the metal to an insoluable form.								
18. **Science News**, Vol. 153, May 23, 1998, Page 325: "Something's Bugging Nuclear Fuel"								
reports that bacteria can thrive in extreme environments, including the highly irradiated pools								
of water holding used nuclear fuel rods in Aiken, S.C.								
19. **Environmental Restoration Program**, administered by the Remedial Action Program								
Information Center (RAPIC), Nuclear Facility Decommissioning and Site Remedial Actions,								
Selected Bibliography, DOE, Oak Ridge National Laboratory, 138 Mitchell Road,								
Oak Ridge, TN, 37830-7918, Report #2349: Entitled: ***Microbial Degradation of Low-Level***								
Radioactive Waste, Final Report, pp 587.								
Also Report #3188: ***"Microbial Reduction of Uranium Using Cellulosic Substrates***, pp 809								
stating SULFATE REDUCING BACTERIA CAPABLE OF REDUCING URANIUM FROM								
THE SOLUABLE +6 OXIDATION STATE TO INSOLUABLE + 4 OXIDATION STATE.								
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	Cometabolism for biodegradation of wastes, including heavy metals	5/15/06

Definitions:

Cometabolism: Cometabolism is a process in which microorganisms, while using one compound for energy and growth (primary substrate), fortuitously transform another compound, from which they can not obtain energy for growth.

Dr. R. S. Horvath, "Microbial Co-Metabolism and Degradation of Organic Compounds in Nature" published in the Bacterial. Review, Vol. 36, No. 2 pp. 146-155, 1972.

Humus The formation of natural humus results from the incorporation of natural organic acid precursors and aromatic structures into an irreversible complex. These base compounds are biological degradation by-products of natural organic matter.

EKOTEK EKOTEK produces a man-made humus using many different solid and semisolids organic wastes, and process it under high heat and by microbial actions in both aerobic and anaerobic conditions. They are blended with minerals, and having both humic and fulvic acid ingredients. Many hazardous and specialty chemicals will complex with humic materials. It can be custom-made for different applications as required.

What Happens in Bioremediation: Via Biological Transmutation:

a	Microbes produce organic acids as chelating agents
b	Heavy metals are biologically transmuted
c	B12 vitamin is essential to synthesize metal alkyls
d	Biosynthesis is taking place during cometabolic processes.
e	Chelation by humic and fulvic acids is essential in biological transformation.
f	Due to the Second Law of Thermodynamics, that is the Increasing Entropy, in humus environments the microbial actions bio-transform heavy atomic weight elements into several less heavy atomic mass substances. This biological degradation is speeded up by the microorganisms, which have been reported by scientists. EKOTEK is following suit to produce humic substances with appropriate microbial families to follow this entropic law.
NOTE	***Bioremediation is an accepted technology to reduce or eliminate hazardous toxic substances from the surface, subsurface, air and liquid environments.***

Transmutation: Encyclopedia Britannica defines transmutation as a conversion of one chemical element into another. It entails a change in the structure of atomic nuclei and hence may be induced by a nuclear reaction, such as neutron capture, or occur spontaneously by radioactive decay.

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Appendix Section 5

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Transmutation: Concluded							
Ernest Rutherford, Baron Rutherford of Nelson, Nuclear Physicist & Nobel Prize winner (1871-							
	1937) was the first to propose that radioactivity involves a transmutation						
EB:26:1006-1007/1994	of one element into another. Transmutation is governed by some empirical						
	laws. For example: in alpha decay the atomic number of the "daughter"						
	element is 2 less that the of the "mother" element, and its atomic weight						
	(mass) is 4 less. This is consistent with the fact that the alpha ray,						
	identified as helium has atomic number 2, and atomic weight (mass) 4						
	so that the total atomic number and total atomic weight (mass) are						
	combined in the decay reaction.						
CLEAN ENERGY REVIEW	(Canadian Environmental Assessment Agency)						
	General overview of technologies available for the disposal of nuclear wastes						
A	Canadian Shield, Disposal Vault System, underground caves, very stable geological						
	site. A highly reliable option for Canada.						
B	Nuclear incineration:	First separation, second fuel fabrication, third reactor irradiation					
	(No such facility exists in Canada)						
C	Advanced Transmutations Technologies:						
1	**Biological Transmutation**						
	There are four modes of decay, alpha, beta and gamma and fourth one is						
	the recently discovered biological decay. It is coined as biological trans-						
	mutation by Professor C. Louis Kervran (1901-1983). Nominated for Nobel						
	Prize in 1975, he responded: "I simply pointed out what has always						
	existed".						
	The essence of this discovery is that elements in biologically active						
	environment do transmute into other elements, following a strict pattern,						
	either sideways or downward, based on their atomic weight (mass) numbers.						
	Since EKOTEK Humus has been formulated with corresponding microbial						
	life present, its applicability to nuclear waste management is a major						
	advantage to the industry.						
2	**Brown's Gas Technology**	Ionic H & O Mixture is very effective in elimination of					
	nuclear wastes. China mass-produces these units.						
3	**Smith-Coils, a non-Hertzian Energy system, extremely promising.**						
4	**Whittaker Electromagnetic Energy System, it remains proprietary technology,**						
	(pending patent application.)						
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YYRHQ	**Tabulation of Bioremediation Information**	Page #5
	Cometabolism for biodegradation of wastes, including heavy metals	6/8/06
	Summary of Technologies Available for the Disposal of Nuclear Wastes	
Question:	In the view of the Hanford, WA chemical-nuclear waste leaching into the aquifer and into the Columbia River, how these available disposal systems may be applicable?	
	DISPOSAL SYSTEMS AVAILABLE:	
1	**Subterranean Vaults** (Yucca Mountain, NV, Canadian Shield Caves, etc.)	
	Not applicable since those canisters can not be moved.	
2	**Nuclear Incineration**	
	It may explode, inviting more problems, therefore out of question.	
3	**Brown's Gas Technology**	
	Can not be used here, it is for laboratory and surface application of small items.	
4	**Smith-Coils**	
	Very promising new technology for laboratory and surface items.	
5	**Whittaker Electromagnetic Energy System**	
	It is still in development stage, very advanced, it can not be used for subsoil disposal of chemical and nuclear wastes.	
6	**Glassification Of Nuclear Wastes**	
	It is still in the future, but since the canisters can not be disturbed this is out of question.	
7	**EKOTEK Interceptor Trench**	
	Due to the many unknowns in this chemical-nuclear waste deposit, which has been leaching into the aquifer and into the Columbia River, the only solution available is to intercept the leaching stream. By monitoring wells the gradient levels can be found, and the depth of the Interceptor Trench can be defined. The EKOTEK Humus, with selected microorganisms and other high energy nutrient substances, is able to biologically transmute radioactive chemical and nuclear wastes into harmless elements. This Interceptor Trench can be aerated by forced negative or positive mode, providing oxygen for certain families of microbial life. For a long term nutrition program, additional selected substances can be injected time to time to sustain this biological transmutation of chemical and nuclear wastes.	
	The EKOTEK Humus is made from many waste materials in a environmentally friendly controlled processing. Utilization of those wastes for bioremediation functions will play a double role of disposal of modern day waste management.	
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