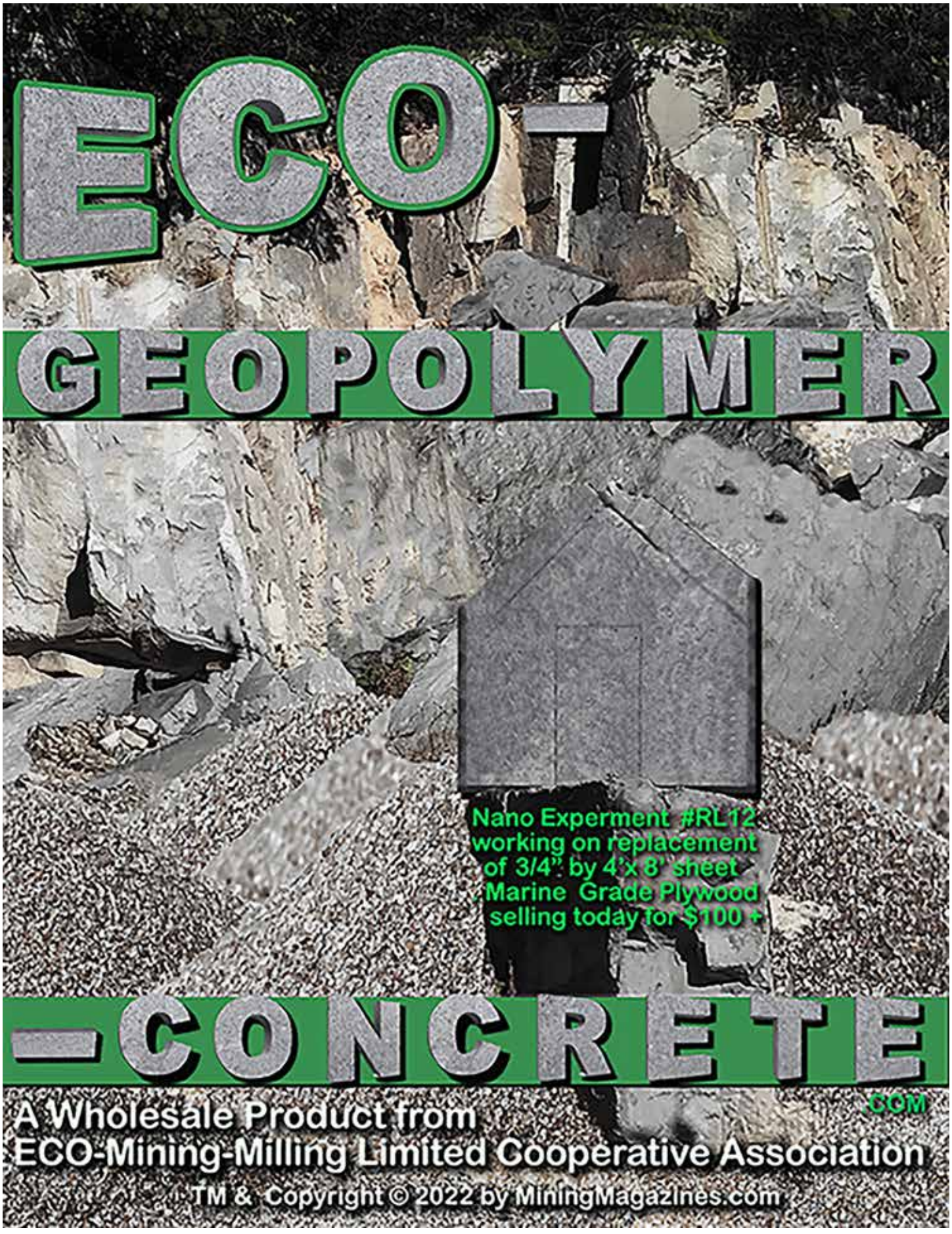
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Review

How a Naturally Formed Nepheline Syenite Alumino-Silicate [Al_2O_3/SiO_2] High Performance Geopolymer 'Paste' Is Being Left Behind In a One-Sided Race to Replace Excessive High Greenhouse Gas [GHG] Production caused by the Manufacturing of an Out-Of-Date Portland Cement Formula

A MiningMagazines.com White Paper "Book" Chapter locked in a password protected PDF intended for peer review distribution for "corrective" comments on delivering a non-proprietary home building material used to protect ordinary human beings against catastrophic climate change collapse..

A HISTORICAL INTRODUCTION

A Curious Thing Happens when discussing 'Geo-Logical' Time divided into Epochs and Ages — even amongst those that profess to understand the earth sciences. We also collectively like to think that a solid bit, of a solid rock, chip of rock sample that can be seen to be different, even without a examination glass, tossed to another for a scratch, feel, taste, field test that really does not really apply to the advertising industry standard of trust of, "solid as a big rock", something not being that important today during an emerging of nano technology breakthroughs becoming "breaking news", with answers to combat disputed political battles using "Global Warming" dis-information to cover-over the cause and effect of NASA's proven Climate Change Evidence: Vital Signs of the Planet.

Just as Oregon's "big" plutonic plug, pipe, or sill deposit of Nepheline Syenite, identified as an Alimino-Silicate, containing the Rare Earth's of Lanthamun and Cerium identified by the Bureau of Mines Research Facility in Albany Oregon —since closed by Congress as a costs savings?

A typical "conservative" miscalculation that directly benefited China's Rare Earths superiority when it comes to Electric Vehicle motors and batteries that already have shown a measurable difference in turning back the Global Warming Greenhouse Gas Doomsday Clock —something that apparently cannot be accomplished by the political energy wasted by talking-head flapping lips.

This unique, large, and until recently unknown Nepheline / Feldspathic nano science Cement, identified with two light REEs supporting the pyroclastic flows [think Obsidian and volcanic Tuff] Nepheline Syenite roles in modern glass resistance and an unexplored oxide that allows the selective absorption of ultraviolet light.

Through the BM/USGS "glassy" volcanic research on the unique Table Mountain

ore we are just now beginning to understand that as SiO_2 —naturally soluble— Atomic Weight # 14, when combined with Al_2O_3 Atomic Weight 13, —another unusual naturally soluble part of Nepheline polycondensation happening— where Aluminum oxide reacts with Silicon dioxide to produce aluminum silicate.

Lately this natural mixture has been defined as a **Calcium-Aluminum-Silicate-Hydrate** "cement binder" — also is being labeled the (**CASH**) formula— of a rare zeolite association that other papers are now reporting to be the lost (NP) or **Natural Pozzilina** ingredient of a historic super-strength hydraulic Roman Concrete.

This volcanic produced C-A-S-H density of the matrix is what China, Russia, France, Holland recognized as having importance when developing their medium light "geopolymer" cement for 3D printing systems of affordable housing.

It appears in a lack of publicly published (or affordable priced) papers that America is falling behind on true geopolymer concrete research needed to build incredible long span bridges over the Great Gorges of China and dealing with an Alaskan style permafrost by using raised pylons of a "special concrete" poured into a wintertime frozen ice mold on a railway headed to Tibet ,or a 'Chunnal' under the Bering Sea to connect with an extended Trans-Siberian rail system linking New York/London; and what was happening in Russia, China, Africa, Egypt, and especially Australia — where engineering breakthroughs in 3D geopolymer cement /concrete house design and the World's first public building with structural Geopolymer Concrete, apparently do not impress New World financiers more interested in flipping bitcoins for fun and profit.

A "C-A-S-H" Formula Natural Pozzilina Sidebar

One of the curious self-serving scientific twists holding back the re-invention of a Roman Cement Polymer in a so-called sophisticated country where just about every US paper released for public investment of adversing purposes concerning concrete breakthroughs is through the use of smart concrete "F-class coal dust fly ash", which **is not a natural volcanic pozzilina.**

And, somehow, an endorsement of an 1800-1900s clear-air polluting Portland Cement Association listing monopolistic standards today have become the authority when it comes to just anyone applying for a government infrastructure contracts, or justifying the issue of so called "carbon credits" for reducing greenhouse gas pollution.

The truth is — the use of a "sustainable" for being a "low cost" recyclable F-Fly (Coal) Ash to somehow reduce the Greenhouse Gas [GHG] Production caused by the

manufacturing of Portland Cement, is flawed engineering. The (coal) fly ash [Al 3.59-5.93, and Si 36.63-39.09 percentages ratio] used to replace nature's supply of a superior volcanic fly ash of a correct Al_2O_3 /SiO_2 Table Mountain Natural Nepheline Syenite pozzilina ratio of a near twenty percent Alumina, with nearly sixty percent Silica — which also has a desirable TiO2 addition, where the replacement of 1% in ordinary cement has shown an increased compressive strength by 8 percent.

According to Qiang Yuan, ... Cong Ma, in **CIVIL ENGINEERING MATERIALS, 2021**
"Natural pozzolans —The reactive chemical compositions of natural protozoans are silica (SiO2), alumina (Al2O3), and iron oxide ($Fe2O_3$). The sum of these three oxides is required to a minimum value of 70% by mass for a suitable pozzolan."

Adding up Table Mountain Nepheline Syenites' Natural Pozzilina Al_2O_3 /SiO_2/ Fe2O3 to a mass of 78.57% safely validates this as the superior chemistry of all suggested pozzolan substitutes. This paper also answers a mystery about Pozzolanic materials of *"volcanic origin, which may be found in loose (incoherent) or compacted (coherent) forms in nature. The latter results from the post depositional processes such as weathering, compaction, cementation, and hardening of the originally loose material. These processes may change the original structure into clayey or zeolitic character."*

As the manufacturing of a synthetic fly ash substitute is done by scraping dangerous **black carbon dust** from the smokestack of a coal burning electrical generating facility is not something out of the Industrial Age that should be "Green Washed" for Digital Age credits that only benefit institutional investment style advertising..

See, Prof. Dr. Joseph Davidovits French based Geopolymer Institute dramatic paper in a pass-along PDF, worrying about Australia as: A continent is on fire. STOP promoting fly-ash based cements!

Possibilities Looking Past "Green, Affordable Housing"

So, what if some grad student in an underfunded India/Pakistan educational institution were to consider that the "dirty" Silica in the smart roof and geopolymer walls, and following a 26 year-old Albert Eisenstein's —discredited at the time— interest of the "photoelectric effect" of ultraviolet light knocking electrons off the surface of a piece of metal, noted in a 1905 paper on the "Photovoltaic Effect' which really became part of his 1921 Nobel Prize in Physics. Where 100 years later his Albert's Asperger's thinking finally understood as seeing solar light promising, just in time, to replace the carbon energy we burn from a depleting stockpile of coal, oil, natural gas.

And what if, an Iranian student familiar with his country's similar chemistry to the Table Mountain Nepheline Syenite deposit goes past building a nuclear waste, self healing, glass casket as used by ~~redacted~~ at ~~redacted~~, took a look at sealing, to protect the parts-per-million chemical invasion of safe drinking water from the use of lead pipes, by an endoscopic inserted geopolymer hydrate Nepheline Syenite interior sleeve seal-coat, as there are a lot of 'Flint townships' in all the developing world.

Of course, using the very same material that filters swimming pools and aquariums, and safely transfered by flushing waste from an imported nepheline "white china" ceramic toilet, and a long-time tested use of nepheline slimes in leak-proof raw sewage system pipes? Other possible uses in need of research is "Nepheline + Graphene".

Barry Murray's use of proceeds and material delivery from ***ECO-Mining-Milling Limited Cooperative Association*** is already spoken for as an yet unorganized employee owned **FloatKrete.com** natural insulation tilt-up walls making a difference in fire, flood, wind proof, affordable housing— perhaps a part of **ECO-Housing-America.com**.

And then the **explorer** has plans to experiment with an unsinkable, ceramic, bullet proof, Nepheline Syenite "FloatKrete" sailing catamaran (with solar auxiliary power) to make his boyhood adventurous dream of doing a circumnavigation on a proof of a concept voyage, totally (with the help of a few new friends) a DIY adventure.

Early USA Nepheline Syenite Reports

The first publicly accessible published report identifying the uniqueness of Oregon's Table Mountain Nepheline Mineral Materials Deposit was a **GEOLOGICAL SURVEY PROFESSIONAL PAPER 840**, Descriptions and Analyses of Eight New USGS Rock Standards, Compiled and edited by F. J. FLANAGAN.

The importance of this was the Table Mountain Peralakaline Nepheline Natural Fly-Ash in a mineable Alumino-Silicate form. With a Moh 6 hardness in wide jointed uniform blocks making is somewhat difficult to channel chip sample, this mineral was no longer a mineral thought of by some geologists as a "Iguessyouareright", of the family of "Leaveitrightthere"!

Then the very aware State of Oregon Department of Geology and Mineral Industries published, in 1973, ENVIRONMENTAL GEOLOGY of LINCOLN COUNTY, OREGON chapter in **Bulletin 81, defined the ECONOMIC MINERAL RESOURCES, at that time.**

This very professional Nepheline Syenite study recognized for having a weight of

159.2 pounds per cubic foot in wide spaced jointed blocks of "Nepheline Syenite jetty stone" —was just one of 14 other identified "Swiss Army knife" commercial uses. Back then the assumed raw material base level, in place, market value was considered be $15 per ton. Which, when using a cumulative inflation rate 400%, works out to be $75 per ton, today, at the start of 2022.

Barry Murray (**TheProspector.com**) first staked Table Mountain in partnership with a geologist attending Law school, for an easy sale to a small business set-aside contractor. When that venture fell through the cracks in favor of a very large construction business, the freshly minted Attorney was forced to divest as he was hired by the BLM to review Mineral Plans of Action, very similar to what was as submitted, below. After a few years in Washington D.C., he was offered a prestigious legal firm partnership to deal with the Mining Law of 1872. Unfortunately, after Barry lost his Mining Lawyer father, his former partner could not offer advice beyond that of it should be a "slam dunk" — for conflict of interest to his firm. But, this connection did lead to something new.

In 2005 RIA **APPLIED RESEARCH LABORATORY** (RARL), which included a Russian Nepheline Syenite expert who could demonstrate to investors how the Alumino-Silicate could foam into useful products, attracted capital from worldwide sources.

March 2006 RIA MINES INC published a **FEASIBILITY STUDY**, by Tomas Manton, a former professor of International Business at the University of Washington in Seattle, who logically assumed that the Table Mountain Nepheline Syenite was the equivalent of 3M's Arkansas deposit being used for a fire resisting roofing material.

And, as explained in a **PRESENTATION TO THE SINGAPORE GOVERNMENT**, Tomas Manton, after bulk samples were sent to requesting main-stream corporations wanting to actually build something, instead of just playing credit-default-swap-insider-trader stock games, was pursuing project funding, world wide, presenting Nepheline Syenite as a magic answer to Tsunami relief, and replacing fishing boats, lightweight armor for Humbvees, nuclear waste containers, and solar powered lightweight foam coolers for 3rd world villages. Also included in the package was a conditional purchase order from a paint company wanting nepheline as a glass-like surface to save bunker fuel moving very-large tankers about. But, the RIA corporation collapsed just as if it had been a British Prime Bank pump and dump scheme, which apparently it was.

How Did This Effort Fail?

And what was learned from the experience? Professor Manton, who have been an Asian schoolmate of Benazir Bhutto, a twice elected Pakistani prime minister, was on his way to a perhaps be an Ambassador (if John Carry was elected POTUS) to another

Nepheline Syenite producing country. Unfortunately, the Honorable Professor stopped by when headed to the airport to pick up his laptop computer from the repair shop of Gualinni and Sons, when he was arrested for allegedly having kiddie-porn buried deep in his hard drive.

Tom did not survive a Florida county jail. His childhood friend Benazir did not last much longer. She was assassinated when returning after exile to assume being Pakistani prime minister in 2007. In other words, Oregon's uncommon Nepheline Syenite had already shown itself, before a Global Warming Climate Change, a political football.

So, enter in 2008, Consulting Geologist Ricardo Villasenor, did a **FIELD RECONNAISSANCE AND SAMPLING** across 640 acres consisting of 32-twenty acre lode claims located after the Department of the Interior moratorium on patenting the existing associated placer mining claims. He accomplished, again proving the uniformity of chemical values across the deposit, and followed up and unpublished Bureau of Mines report concerning the researched presence in elevated levels of Lanthanum and Cerium.

A footnote mentioned that the largest Nepheline Syenite deposit in the world is on the Kola Peninsula in Russia and was mining alumina with as a Ree's as a byproduct. And, that the Unamin Blue Mountain Nepheline Syenite quarry in Ontario, Canada, also was developing as a Rare Earth's source.

The dramatic problem was the report had been done for the brothers of a Kentucky coal mine family, known for not caring about environmental "back yards", also had a bad year financially in 2008. It was then that a "find and flip" prospector claim holder realized it was up to him to lay out and lead a workable, reasonable, sensible, joint venture plan of action to go underground for environmental reasons, no surface disturbance, or tailing piles —in as close to a "zero carbon" way as possible.

This period of preparation was enhanced by some exciting visits led by the Board Chairman of Disen Construction & Mining Ltd of Qingdao, China, who wanted to buy Table Mountain outright, with no continuing royalty control over exactly how mining was to be done, IE: "how big of an open pit it would take to build a luxury hotel at the mouth of the Alsea River, in Waldport?"

Fortunately this "take over, move aside" attitude, of not listening to the political wisdom of Oregon's backyard tree-huggers, disappeared when the politicians of the People's Republic decided to purge what were now calling "shadow banking" exploiters.

The upside was that someone who had only worked as a actual hard rock miner underground early in his career (Colorado during the uranium rush of '55; Montana, Oregon, Nevada in the 1960s) was finally forced to come in from the field to do

something the right way, by perhaps spending too many years filling out a FS 2800-5 Plan of Action form when a simple notification of intent covering activity already in progress should, according to the very well done, especially Pages 18 through 20 of the **USFS Anatomy of a Mine**, suggested that following CFR law a simple acceptance that on the grandfathered in quarries no trees were marked for removable would have been easier than "ghosting" a properly prepared **FS 2800-5 Plan of Action Form** .

The only possible benefit to anyone by not validating the acceptance for the use of a historic USFS road, was for a very large, Canadian managed, yet very much involved in extremest US politics [supporting both left and right PAC paid politicians], where a Real Estate Trust, operating a US quarry just across the line on an edge of the deposit on a privatively owned "School Section" that legally ships US jobs-in-logs, overseas, because "US mill workers aren't smart enough to translate a 2x4" into 5cm by 10cm".

What seems to be the Core of the Problem?

The Rule of Mining Law, with Code of Federal Regulations has been violated in that a bureaucratic USFS District Ranger made too many arbitrary (perhaps requiring an Hatch Act investigation) lazy (directed?) decisions concerning Cornell Law Schools' Interpretation of the Mining Law of 1872, Code of Federal Regulations, of:

36 CFR 228.41 Scope.

(a) Lands to which this subpart applies. This subpart applies to all National Forest System lands reserved from the public domain of the United States

~~(c) This subpart applies to mineral materials which consist of petrified wood and common varieties of sand, gravel, stone, pumice, pumicite, cinders, clay, and other similar materials. (Sorry, that is the wrong one to cite)~~

(d) Mineral used in manufacturing, industrial processing, or chemical operations for which no other mineral can be substituted due to unique properties giving the particular mineral a distinct and special value... (Such minerals may include):

(3) ***Silica suitable and used for glass manufacture, production of metallic silicon, flux, and rock wool;***

(4) ***Alumino-silicates or clays having exceptional qualities suitable and used for production of aluminum, ceramics, drilling mud, taconite binder, foundry castings, and other purposes for which common clays cannot be used;***

(7) Stone recognized through marketing factors for its special and distinct properties of strength and durability making it suitable for structural support and used for that purpose.

The long delayed by 'ghosting' a registered delivered, on July 12, 2018, of a formal **USFS 2800-5 reply** by newly promoted District Ranger by Secretary Sunny Purdue's USDA/USFS, that replaced the Hispanic named Ranger, and fired Area Geologist, Ruth Seeger and Mining and Minerals Administration Manager, Robert Ginn, whom had been present in a 'meet and greet' where Barry Murray was handed a blank USFS 2008-5 Plan of Action (for any planned surface disturbance exceeding five acres) which really had very little to do with the **BLM jurisdiction** —the agency that validated that the grandfathered in mining claims which had been quarried for a specialized jetty stone, and had been **collecting an annual precious metals rental fee** (now well over $5,000 per year) for an Associated Claims, and then Lode claim block, since the early 1980's.

Months after a Mining Law of 1872, Code of Federal Regulations [CFR] mandated response of a 30 day "yes" or "no" —on the form dated 7/12/18— or a further 60 days for negotiation returned on said signed for— the claim-holder over-complying to protect the USFS from any militant tree-hugger demonstrations concerning the intent to resume operations past that of a USFS contracted mining for common variety road gravel for maintaining a long established US Forest Road #52, was informed in a personal letter from the Siuslaw National Forest, Central Coast Ranger at Waldport (visible from a unique Table Mountain), that:

"The Forest Service recognizes that you may have identified what you believe are special or unique values and/or uses for the material [presented as Nepheline Syenite]. However, because this proposal addresses Mineral Materials, the Forest Service cannot evaluate your proposal under the U.S. mining laws or locatable mineral authorities at **36 CFR 228 Subpart A**." [very important]

This ludicrous legal statement mockery— overriding CFR 228.5 Plan of operations minerals approval as stated in : *(d) In the provisions for review of operating plans, the Forest Service will arrange for consultation with appropriate agencies of the Department of the Interior with respect to significant technical questions concerning the character of unique geologic conditions... with respect to mineral values, mineral resources, and mineral reserves*— was answered with a revised USFS 2800-5 Plan of Action filed May 1, 2021, which contained a lot of information concerning the value of "Cement Geopolymers" where a focused attention was paid to the clear-listed mining of, again:

(3) ***Silica suitable and used for glass manufacture, production of metallic silicon, flux, and rock wool;***

The unqualified, bureaucratic, Waldport, Siuslaw District Ranger response here was, *"**While it is possible to produce glass from nepheline syenite, this is not what you have proposed to do, nor is this material silica.'***

Interesting, in that reverse engineering Elon Musk's silica glass solar roof is enhanced by a Nepheline like chemistry with traces of light glass REEs. The Westinghouse use of a silica flux used in nuclear waste "glass logs" is of course a secret, just as a Dr. Yang of Ontario experiments with Blue Mountain, and Table Mountain Nepheline Syenite as a clean air flux for the manufacturing of steel.

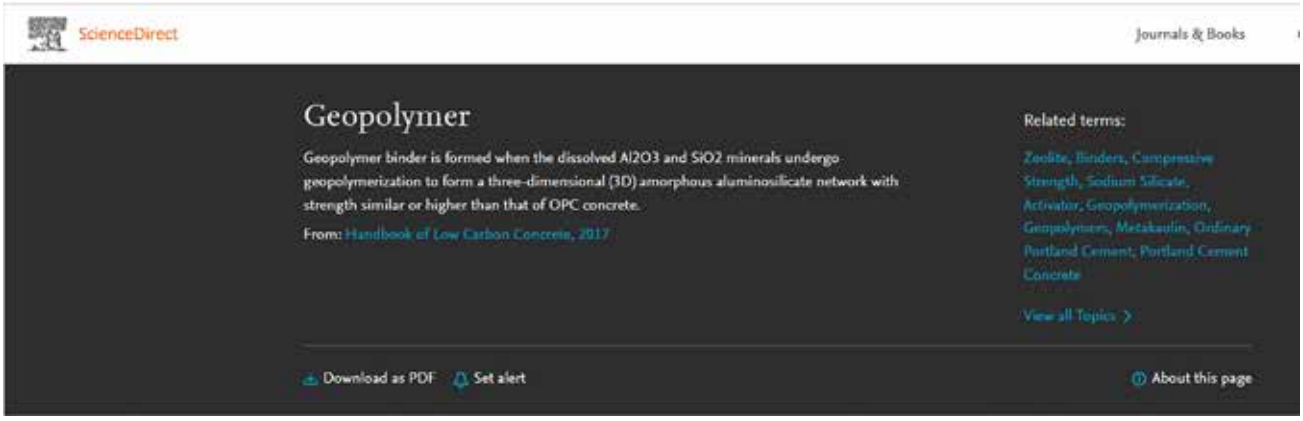
But, of far more importance was the Ranger's biased rational concerning:

(4) ***Alumino-silicates or clays having exceptional qualities suitable and used for production of aluminum, ceramics, drilling mud, taconite binder, foundry castings, and other purposes for which common clays cannot be used;***

And, as said Ranger totally ignored ***Alumino-silicates*** to responded with instead:

"Section (d) does not apply because your plan does not describe how nepheline syenite is unique in creating a geopolymer".

Curious that https://www.sciencedirect.com/topics/engineering/natural-pozzolans



showed a need for expertise, happened just a the firing(?) of USFS Area Geologist Ruth Seeger, and USFS Mining and Minerals Administrator Robert Ginn? So is Murray.

Further, failing to consult with the Department of the Interior, US Geological Survey (that already had defined the Table Mountain Nepheline Syenite rock standard) and Bureau of Land Management that had already validated the filing of Nepheline #1-32 Lode Mining Claims as locatable minerals (reviewed and repeated many years with a $5,000 plus annual "rental fee") was an egregious error of 'failing to understand' at least the role of geopolymer ***Alumino-silicates in ceramics*****, needed today, along with Nepheline Mortar as a significant answer to escalating effects of Climate Change. And in *Defense*?**

Was the politically influenced appointment of Secretary Perdue to mismanage the USDA/USFS ignoring Global Warming Scientific papers in the "ghosted" Plan of Action not really required for any surface disturbance of a grandfathered in quarry wanting to do the proper ECO protection of going underground —just as the major European Nepheline Syenite competitors has done in Norway/Finland/Russia?

For some more up-to-date answers presented by claim holder who had to scramble to do some difficult explaining why he was not a fraud, to the small buy-the-ton investors of a very forward looking, employee owned **FoamKrete.com**, which somehow was slanderously defined (by whom) as "wacky" to the population of Waldort, Oregon.

One of several explanations about the potential of Nepheline Syenite, when Russia put Table Mountain, Oregon, on a world map in ***Evolutional Development of Alkaline Aluminosilicates Processing Technology*** (Andrey Panov, Sergey Vinogradov, and Svyatoslav Engalychev) of sources is so important, in Alumina-Silicate Geopolymer Chemistry world, that mentions a need for Nepheline Syenite from this day forward. And, yes, this paper was part of the original filing of a "blacklisted?" Plan of Action.

Production of nepheline/quartz ceramics from geopolymer mortars by C. Kuenzel1,2, L.M Grover4, L. Vandeperre2, A. R. Boccaccini2,3, C. R. Cheeseman1* 1Department of Civil and Environmental Engineering, Imperial College London, South Kensington Campus, London SW7 2AZ, United Kingdom 2Centre for Advanced Structural Ceramics, Department of Materials, Imperial College London, South Kensington Campus, London SW7 2AZ, United Kingdom 3Institute of Biomaterials, University of Erlangen-Nuremberg, Cauerstrasse 6, 91058 Erlangen, Germany 4School of Chemical Engineering, University of Birmingham Edgbaston, Birmingham B15 2TT, United Kingdom

Abstract

"This research has investigated the mechanical properties and microstructure of metakaolin derived geopolymer mortars containing 50% by weight of silica sand, after exposure to temperatures up to 1200 °C. The compressive strength, porosity and microstructure of the geopolymer mortar samples were not significantly affected by temperatures up to 800 °C. Nepheline (NaAlSiO4) ... the mortar samples were transformed into polycrystalline nepheline/quartz ceramics with relatively high compressive strength."

STANCO | Products. Again a Chinese source at ***www.stancogroup.com/product.php***

"*Nepheline can reduce the firing temperature of the sanitary ware and the firing cycle of the porcelain body. Transparency also has a unique role. Unique role in high-end daily-use porcelain: Nepheline helps to dissolve and disperse MgO and P 2 O 5 in the glass phase, making its crystals small, thus achieving high light transmittance, exquisite ...*"

Rongsheng Kiln Refractory Co., Ltd. of China Aluminous Concrete Manufacturer produces various kinds of high alumina refractory cement with—

"***High mechanical strength, long service life. Chemical stability, not easily to react with other materials. Good performance under high temperature. Properties of Aluminous Cement:***

High hardening speed: aluminous cement could be hardened very fast. Within a day's hardening, its strength can reach more than 80% of the standard strength. Within three days the strength can reach 100% of the standard strength.

Frost-resistance and corrosion resistance: the hydration heat of aluminous cement released concentrated. So it has better characteristic of freezing resistance, corrosion resistance than ordinary cement and other cement. It also has a strong sulfate resistance and mineral water erosion abbearance. Good waterproof performance: since the cement has a high density, so it is waterproof ability. High refractoriness: aluminate cement does not contain dicalcium silicate, so it is a good heat-resistant cement. The fire resistance of concrete can be up to 1300-1400 degrees."

To bring another foreign competitor into the global common variety picture, without going into an International struggle for some of the "light, glassy" REEs associated with the unique occurrence of a natural volcanic Nepheline Syenite Alumina-Silicate ash, tuff, here is what Russia may have to say about Nepheline Syenite having a McClarty test of a locatable mineral deposit, as Nepheline Syenite, having a "distinct and special value."

Which is why a competitive Russia has exported their Nepheline Syenite Geopolymer to Texas —as shown in regional TV broadcasts— to 3D print "affordable housing."

Further documented in ***Russian LimeCementE1-56-22.pdf***, that contains the flow-chart for

Soda ash	45-90
Cement	62

Table 1. Economic index of integrated reprocessing of nepheline concentrate

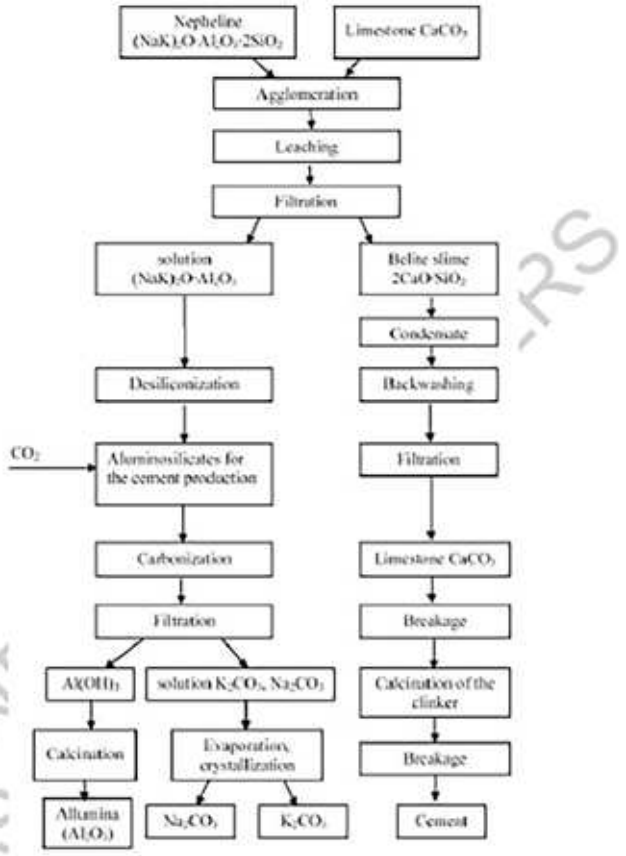


Figure 2. Integrated reprocessing of the nepheline concentrate by Glinozem, in Pikalevo

processing "common variety" Nepheline Syenite, following.

The tactic of late by professional science disbelievers is to state the undisputed obvious, as the McClarty test of the 1900's, when discussing a McCarthyism style miss-understanding of a Nepheline Syenite "Geopolymer" that somehow does not compute when considering the uncommon value of a locatable Alumino-Silicate, otherwise shown, with a Boolean operators search query of "Geopolymer" + "Alumino-Silicate" + "Nepheline" is used to locate trendy papers as these, which have been showing up lately:

27th European Symposium on Computer Aided Process Engineering

> ***"Geopolymer concrete is more durable than Portland cement concrete, ... Geopolymer is an inorganic polymer binder formed from the alkaline activation of reactive alumino-silicate materials resulting in two- or three-dimensional polymeric network. It is a promising alternative to Portland cement-based materials."***

And, following the chemistry past the untested "economics" of using a inferior, dangerous, Coal Ash, with trace elements of arsenic, chromium, mercury, lead —to the point that infrastructure repair costs will bankrupt a small minded government, especially when Eisenhower freeway bridges need to replaced, as already happening.

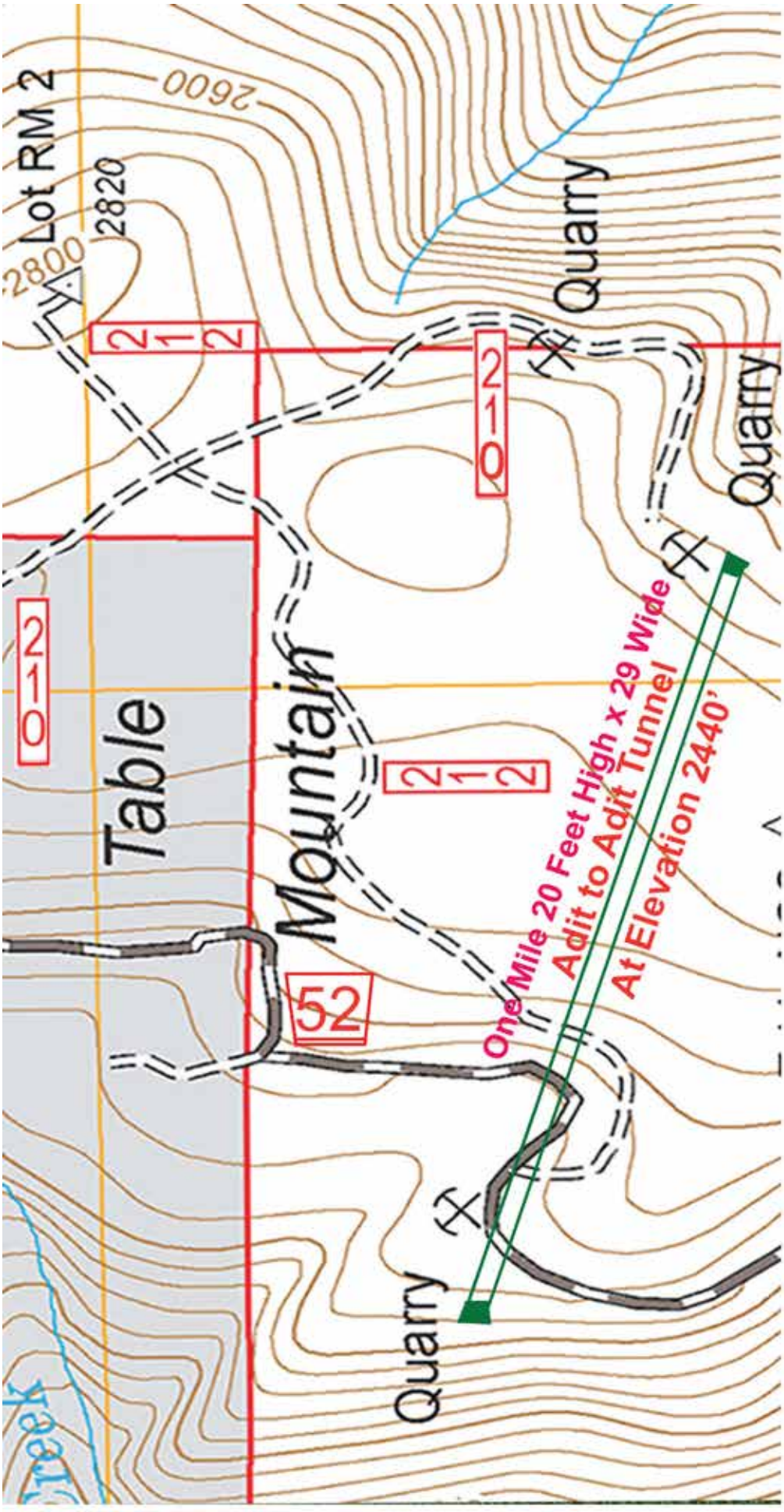
A fun and simple background explanation report of the Table Mountain, Oregon, Nepheline Syenite deposit, further defined as ECO-Geo-Rock, for the proposed contractor/operator of the claims, **ECO-Mining-Milling**, stepping in to fairly share a unique wealth of the Earth for the benefit of mankind, instead of a selected few, to survive Climate Change.

Barry Murray, a USFS Strategic Air Command Photo Intelligence (with a one step above Top Secret clearance) Veteran would also like to follow JFK's "Ask not what your country can do for you - ask what you can do for your country" with an offer to pay back with a material that absolutely is not a common variety.

Cat calls (or woofs) from Smokey the Bear, hopefully answered to Bobo's satisfaction, lets move on using 'for real' science to show how some undefined substance traced at least back to the burning of coal to generate electricity, is used to produce an inferior, manufactured, coal ash version of a true clean air ***Geopolymer Alumino-silicate.***

As for the economics of an **ECO-Mining-Milling project**, the Ranger's *"**Courts of Appeals FS...Explained 'value' by indicating price cannot be the exclusive way that a deposit has a distinct and special value attributable to the unique property of the deposit.**"* ... is...?... really nothing more than what a Ranger Bear is known to deposit in the woods.

What if "economic value" is all in the SiO_2 / Al_2O_3 percentages, being offered for sale in a supposedly fair and open US marketplace — ***WHAT IS GOING ON?***



4) This plotting of the proposed adits, connecting in a room and pillar mid-point ,thanks to these turn on, or off, quality layers of the recent US Forest Service recently published digital topographic series far more useful than the outdated USGS Quadrangle (Tidewater) I used as a base for my early claim map.

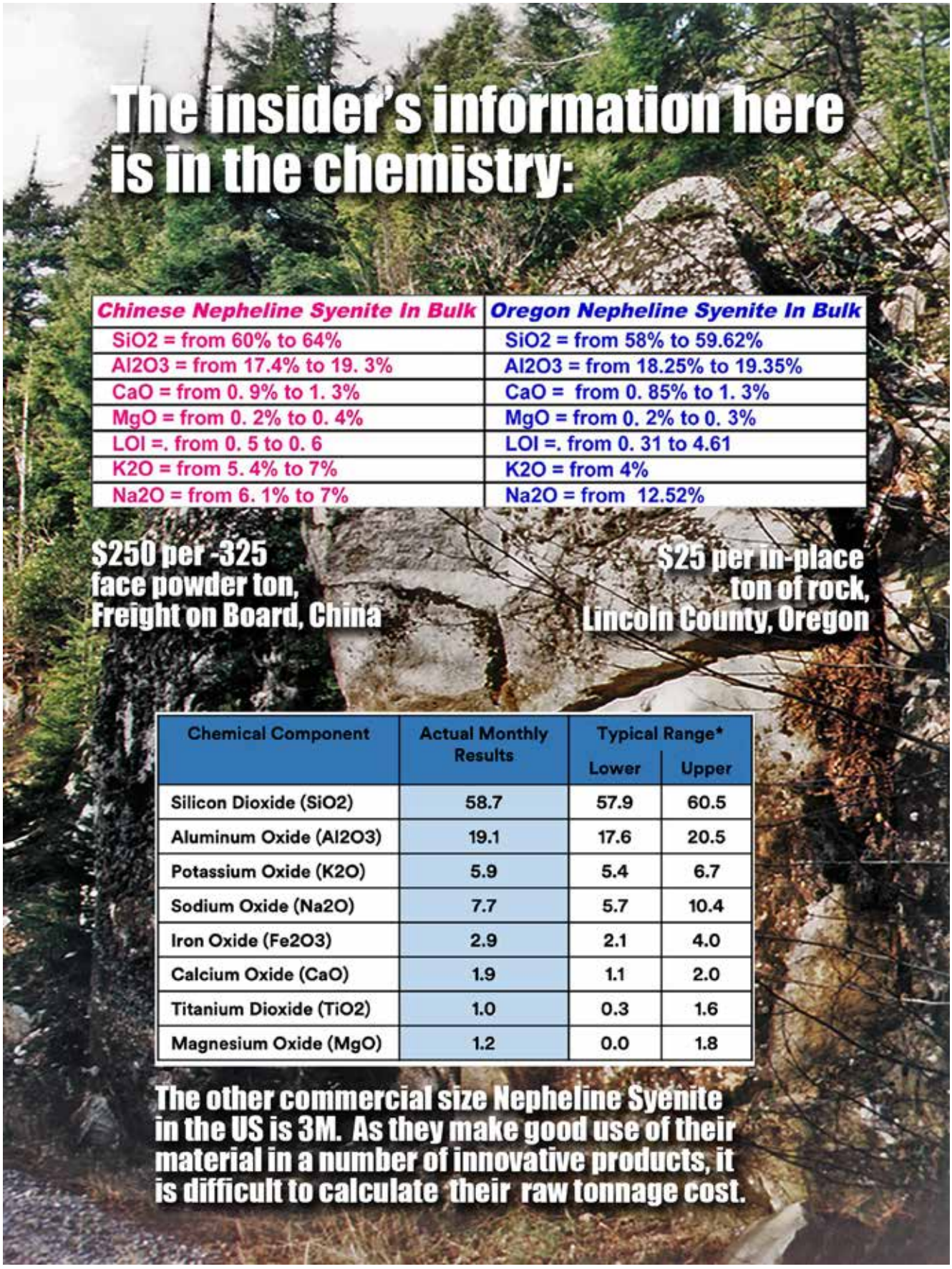
And, as demonstrated in a few pages, a geographical contour map is a huge improvement defining access roads, and spurs, in a planimetric "fire map."

The slight discrepancies between the photo base, and the established brass caps overlay has to do with that even satellite imagery has to deal with a distortion of axis yaw.

Professional Papers

1) Underground Mining Methods.pdf

2) Hard-Rock Room and Pillars .pdf



Continuing following where this white paper is going, at [MiningInvestment.com](), or [WesternMiner.com](), or [Yet Another MiningMagazines.com Paper]() by Keyser Söze, below.

The Scientific Way To Deal With Climate Change is to Follow Geological Events Dealing with the Living Rock of the Nepheline Syenite Alumina-Silicate family

by Keyser Söze, February 2020

One simple way to deal with Global Warming is to start with the basics of living on a planet still in formation. Beginning with the transformation of deep seated molten magma that was a uplifted as an intrusion — a volcanic pipe that did not explode and dissipate as pumice into the atmosphere — or flow as a glassy silicate Obsidian, which cooled so rapidly that atoms were unable to arrange themselves into a crystalline structure, which is why this amorphous material is known to some as a "mineraloid" just as mined Anthracite or Bituminous coal.

As, however, the bits of a Nepheline Syenite in a "natural glass rock" that can be measured by Atomic Weight, it is even harder to describe the liquid mantel transformation of a pyroclastic flow bubbling, burping, folding, and being reheated again, and again, into a puddle of a naturally "cemented" sill, which somehow reminded someone of *The Septuagint* (the Greek version of the Old Testament) translated "Nephilim", with the Greek word for "giants." Appropriate, for all the struggle of solidifying. So, it became written — Nepheline Syenite, $Na_3KAl_4Si_4O_{16}$ — almost as joke of a rock seldom seen in mineral educational collection specimen kits for students.

Where Barry Murray's friend and mentor, Alaskan Ernest Wolff, a Research Associate for the Alaska College Sciences and Mineral Industry —and better known for his "*Handbook for the Alaskan Prospector*" — described Nepheline Syenite as a "*Magmatic concentration of contact metasomatism*". What triggered his interest was when Canadian Nepheline Syenite claims were staked on Blue Mountain near Peterborough, Ontario, in 1932 — where this "common variety material" is still being produced by an often described, by informed sources as an "International Cartel."

Today, in Costesti , Transylvania, Romania, tourists are drawn to "Trovants", a German term for "Sandsteinkonkretionen" for cemented sand that when it is chemically active secretes a cement making it appear to grow at times, as if alive. Perhaps the explanation of a "*Fluid Evolution in the Nepheline Syenites of the Ditrau Alkaline Massif, Romania*" an intrusion in crystalline zone of Nepheline syenites. The insider joke being, a long ongoing discussion as to exactly what is the crystal pattern on an ever-changing holocrystalline —where every bit of the mineral matter is in a crystalline form, and there is no glassy fractions—other than the plutonic rock.

Just as mysterious was a Paper out of the *Department of Chemistry, University of*

Trondheim, Norway, where referring to the USGS PROFESSIONAL PAPER 840 on Rock Standards where "*STM-I is a sample of peralkaline nepheline syenite from Table Mountain, Oregon,* ***in many cases considered to be a difficult material for analysis, and should as such be a valuable sample for the testing of new methods****".*

The fact that variations on a new theme of Felspathoid/ Alumina-Silicate being labeled something brand new by for evening news broadcasting of something you might want to stick in an investment folio, has not helped scientific contrast and comparison. As a Greenland discovery of Anorthosite(?) being marketed as a possible replacement of a EEuropean Nepheline Syenite for use in cement?

Back to the problem of identifying a mixed and matched Nepheline Syenite past this true, classic description accepted at Wikipedia:

"Nepheline syenite is a holocrystalline plutonic rock that consists largely of nepheline and alkali feldspar. The rocks are mostly pale colored, gray or pink, and in general appearance they are not unlike granites, but dark green varieties are also known. Phonolite is the fine-grained extrusive equivalent."

However when recognizing that contact metamorphism of a Felsite, not further explained as being Hypidiomorphic or Xnomorphic, with a "6 degrees of separation shaggy dog story" of the "Feldspar" State of Oregon designated Gemstone, marketed as a "***Sunstone***" Crystal leads to a Old West tale.

This trail to acceptance following an unusual appeal to the government of to settle what an unrecognized "feldspathic material" actually was. Wm. B. Murray of Portland —perhaps the most famous mining law practitioner of the West, asked his client to bring in raw samples— which were passed along to gemologist Dr. Walcott —listed in *American Men of Science*— who was friends with Linus Pauling of the same "cow college" funded by the sale of "school section" on Table Mountain. Chemist Pauling's "*The Nature of the Chemical Bond: A Documentary History*" was awarded the Nobel prize in chemistry in 1954. Which is how it happened that the unknown material was donated to the Smithsonian, with a proviso that they assigned a name and name for tax write-off purposes. Which is why this writers favorite double, single, Nobel Prize winner, quote is, "*The best way to have a good idea is to have a lot of ideas.*"

This convoluted bubbling and burping tale also is correctly identifying commercial Nepheline Syenite competitors in Canada, Russia, China, Norway, India, Pakistan, Iran, Romania, Brazil, Greenland (?) lately have been complicated by coal and Portland cement conglomerates pushing their incorrectly identified manufactured versions of a coal based product dubiously advertised as a Roman Concrete pozzolanic "fly ash."

One text book answer to that is *"There are four basic eruption processes that produce volcanic*

ash: (1) decompression of rising magma, gas bubble growth, and fragmentation of the foamy magma in the volcanic vent (magmatic), (2) explosive mixing of magma with ground or surface water (hydrovolcanic), (3) fragmentation of country rock during rapid expansion of steam and/or hot water (phreatic), and (4) breakup of lava fragments during rapid transport from the vent."

Variations in eruption style and the characteristics of volcanic ashes produced during explosive eruptions depend on many factors, including magmatic temperature, gas content, viscosity and crystal content of the magma before eruption, the ratio of magma to ground or surface water, and physical properties of the rock enclosing the vent. Volcanic ash is composed of rock and mineral fragments, and glass shards, which is less than 2 mm in diameter."

The follow the "bubble to the peak" scenario is...

Transformed, amorphously, by reheating and folding in a pyroclastic flow. Similar silicate, naturally cemented dikes, peralkaline trachyte intruding Tertiary volcanic rocks, will most likely require today's exceptional X-ray laser to reveal structures of not-so-neat-and-tidy materials. Francis Crick, co-discover of the shape of DNA, said: "*If you want to understand function, study structure.*" Many decades later, this remains a tenet of biology, chemistry, and materials science to perhaps time travel on the Internet back to the Oligocene Epoch.

The best guesstimate of when all this happened was perhaps only 33,600,000 years ago. Just about the time geographical changes of a ripple effect influenced climate change and vegetation, and the ways in which animals develop. The most important geographical event echoing the present time climate change reversal was the splitting off of the ***Australasian*** landmass from Antarctica. As the oceans encircled the growing polar ice cap, the waters cooled. This cooling effect was spread around the globe by circulating currents that produced a dramatic drop in temperatures. And, equally important, a new climate marked by seasonal fluctuations and movements.

One yet to be proved thought, is that there is a relationship between plate tectonics theory and subduction fault zones with intrusive activity. As the Cascadian fault zone just 60 miles off the coast of Waldport. Many of the deep pegmatite pipes associated with diamonds, rare earths, a various other Alumina- Silicate activities, are found within a certain distance, worldwide from an ocean. Or at least, in "older" mountains.

The next *hard to explain Alumina- Silicate geopolymer crystalline interlocking event of a re-agglomerated concrete*, is that some geologists in Egypt have been suggesting the pyramids of were constructed 4,500 years ago from geopolymer "Geo Rock Powder" mixed with a little water into a removable form, as in-place masonry, instead of thousands of slaves transporting chisel-cut blocks up an impossible incline.

When it comes to dealing with todays Global Warming

Want to survive as a species ? Then follow the practical wisdom the Roman Empire, which did live through the "*Capto eos in pussy*" of emperor Caligula, and the dictator Nero, that "due to his weak character, fear of plots against his life, and the impatience of putting his own vision of Rome into action" is best remember for playing a fiddle as fire consumed neo-trumpinian towers of me-ism. It also should remembered that scape-goat for that political disaster, were Christians — some being very nice people—being rounded up for execution. Avoid dictators!

The buildings of Rome that lasted were due to the use of a "Nepheline Cement" having a longevity which appears to be based upon a volcanic ash— the pozzolan recipe for concrete set down by architect Vitruvius in the first century BC. The identify of this which material that weathered into a natural "pozzolana" with chunks of volcanic rock, known as tuff. Also described, as tuff-ash larger in size than scoria.

The outstanding [and still standing] projects of the BPC [Before Portland Cement] era included the Pantheon. Which two thousand years after it was built, the 142 foot across dome consisting of 4,543 tons of Roman cement/concrete—but no re bar— is still the world's largest unreinforced concrete dome.

Several very professional papers explaining the Alumina-Silicate C-A-S-H effect:

MECHANICAL RESILIENCE AND CEMENTITIOUS PROCESSES IN IMPERIAL ROMAN ARCHITECTURAL MORTAR, PNAS, 2014

Marie D. Jackson, Eric N. Landis, Philip F. Brune, Massimo Vitti, Heng Che

"*The pozzolanic mortar perfected by Roman builders during first century BCE is key to the durability of concrete components in structurally sound monuments well maintained over two millennia of use.*

Pozzolans, named after pumiceous ash from Puteoli (now, Pozzuoli) in the Campi Flegrei volcanic district, react with lime in the presence of moisture to form binding cementitious hydrates (9)]. By the Augustanera (27 BCE–14 CE), after experimenting with ash mixtures for >100 y, Romans had a standardized mortar formulation using scoriaceous ash of the mid-Pleistocene Pozzolane Rosse pyroclastic flow (Fig. S1) that substantially improved the margin of safety associated with increasingly daring structural designs (10, 11). They used this mortar formulation in the principal Imperial monuments constructed in Rome through early fourth century CE.

The mortar reproduction gains fracture toughness over 180 d through progressive coalescence of calcium–aluminum-silicate–hydrate (C-A-S-H) cementing binder with Ca/(Si+Al) ≈ 0.8–0.9 and crystallization of strätlingite and siliceous hydrogarnet (katoite) at ≥90 d, after pozzolanicconsumption of hydrated lime was complete."

And —

THE SECRETS OF ROMAN CONCRETE —IMAGINE BUILDING STRUCTURES THAT LAST 2,000 YEARS. HOW DID THEY DO IT?
By, Augusto CannoneFalchetto

"THE SECRET ROMAN RECIPE
•Pozzolan
•A siliceous or aluminous material which in itself possesses no cementitious value, but will, in a finely divided form, and in the presence of moisture, chemically react with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties
•By using volcanic ash in the place of river sand in their concrete, the Romans were able to mimic the process by which Portland cement chemically bonds lime to clay through the application of heat.
•But finely divided pozzolan must be amorphous (glassy) to chemically react?"

Following that local pride paper, here is a broader version of an:

Architectural Survey of Art History Western Tradition, Part 1

"Roman concrete (opus caementicium), was developed early in the 2nd c. BCE. The use of mortar as a bonding agent in ashlar masonry wasn't new in the ancient world; mortar was a combination of sand, lime and water in proper proportions. The major contribution the Romans made to the mortar recipe was the introduction of volcanic Italian sand (also known as "pozzolana"). The Roman builders who used pozzolana rather than ordinary sand noticed that their mortar was incredibly strong and durable. It also had the ability to set underwater. Brick and tile were commonly plastered over the concrete since it was not considered very pretty on its own, but concrete's structural possibilities were far more important. The invention of opus caementiciuminitiated the Roman architectural revolution, allowing for builders to be much more creative with their designs. Since concrete takes the shape of the mold or frame it is poured into, buildings began to take on ever more fluid and creative shapes.

When it comes to Roman marine concrete, used to construct piers and breakwaters, "thin section" research in Israel published in 2017 found that the addition of sea water actually strengthened these structures over time, making them harder and harder over the millennia. Too bad the information about hydraulic concrete self-sealing cracks wasn't

available when the Surfside condo on the beach in Florida was built, or inspected."

***Extreme durability in ancient Roman concretes*, American Ceramic Society Bulletin**

Another piece by Marie D. Jackson, Research Associate Professor, Geology & Geophysics, University of Utah

"The concretes developed by Roman architects and engineers have unique material characteristics that have never, to date, been replicated. Roman volcanic rock hydrated lime concrete prototypes could potentially further reduce CO2 emissions; enhance chemical and mechanical resilience and self-healing properties; conserve freshwater resources through the use of seawater (or brines); and greatly extend the service life of concrete structures in marine environments.

They also could be applied to concrete encapsulation of hazardous wastes and cementitious waste forms or low-activity nuclear wastes through crystallization and cation exchange in certain mineral cements, such as Al-tobermorite."

And then, following up the disciplines of Geology, Mineralogy, Geochemistry, History, Architecture, Anthropology, and now Archaeometry in:

ROMANS' ESTABLISHED SKILLS: MORTARS FROM D46b MAUSOLEUM, PORTA MEDIANA NECROPOLIS, CUMA (NAPLES)
by Claudia Di Benedetto*1, Sossio Fabio Graziano1, Vincenza Guarino1, Concetta Rispoli1, Priscilla Munzi2, Vincenzo Morra1, Piergiulio Cappelletti1, as printed as an open access paper in Greece, of some importance to Nepheline Syenite deposits in Russia, China, Norway, Brazil, etc.— and Table Mountain, Oregon, USA.

"*These deposits, linked to high-magnitude explosive eruptions, were accompanied by caldera collapse followed by emplacement of pyroclastic sequences... whereas nepheline and exotic minerals (e.g. disilicates) can be found in most evolved products (Morra et al. 2010 and references therein; Melluso et al. 2012).*"

Again, please check out the Nepheline Syenite Geopolymer C-A-S-H formula Elements and the book where Qiang Yuan, & Cong Ma state in Civil Engineering Materials, 2021

"Natural pozzolans —The reactive chemical compositions of natural protozoans are silica (SiO2), alumina (Al2O3), and iron oxide ($Fe2O_3$). The sum of these three oxides is required to a minimum value of 70% by mass for a suitable pozzolan."

Now Is The Time To Re-think "Common Variety"

Allegedly, the secret concrete formulas of the past were lost during the

burning of the Library of Alexander, and followed by the collapse of the Roman Empire leading to the truly Dark Ages. The mystery of Roman Cement remained lost, or at least unavailable by local supply during the coming of the Industrial Revolution— a time of burning of coal to make steel. As an age of coal used in a roasted manufactured production of Portland Cement, and the steel re-bar, needed to compete against the strength of a natural concrete.

And, according to the patented Portland Cement Association the product replacing a "common variety" soil cement, was a more cost effective to stabilize the building materials marketplace. This is how concrete became, after water, the World's second largest used natural resource. And how the Industrial Age manufacturing of steel and cement began trading places every now and then on visual aid charts as the 2nd, and 3rd, largest producers of Greenhouse gases.

Unfortunately, the total price of quick delivering by a revolving truck a basic survival need for shelter is bringing us back full circle to the climate changes of the Oligocene. Besides our growing need for affordable housing, we also require a chemically pure water to grow food.

Another Climate Change percentage to worry about is the big "O" for oxygen— in the mix of gases we breath. The current level of 20% Oxygen in the atmosphere has been maintained by the photosynthesis of the green plants and trees of the world. As Global Warming is feeding upon itself by burning everything up, this cycle may have the biggest consequences.

So, I hope I can save my breath arguing further with the USFS, by appealing instead to the Department of the Interior —as it was until the "spotted owl" so-called protection— where the Bureau of Land Management in charge of determining what was the "country rock" of the Table Mountain Nepheline, the same the USGS used as a published rock standard in a GEOLOGICAL SURVEY PROFESSIONAL PAPER 840 in 1976.

Something that researcher Claudia Di Benedetto referred to in 2018 in her paper as an X-ray powder diffraction *reaction between silica and aluminum contained* ***in the "pozzolanic" material, that has been elevated a common variety nepheline to an EXOTIC mineral with an economic value.***"

A Breaking News >>> Breakthrough

The idea of doing away with Portland Cement manufacturing , and the associated use of a Coal "fly ash" —instead of a Natural Fly Ash —which adds to a the production of "green house" gases causing violent Climate Change reactions— finally has a scientifically approved use of a Nepheline Syenite Geopolymer Cement to totally replace an Industrial Age formula.

INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGYRELATIVE ANALYSIS OF FLY ASH BASED GEO POLYMER CONCRETE INATMOSPHERIC CONDITION

Mr. Ashwin Sharma *1, Prof. Sambhav Gangwal 2 *1 PG Scholar, Civil Engineering Department, Malwa Institute of Science & technology, Indore(M.P.) *2 Head of Dept., Civil Engineering Department, Malwa Institute of Science & technology, Indore(M.P.)

The importance of this was the Table Mountain Peralakaline Nepheline ***"Natural "Fly-Ash replacing the cement in concrete with geo-polymers. In geo-polymer concrete cement is replaced by fly ash and alkaline solutions such as sodium hydroxide (Na OH) and sodium silicate (Na2O, SiO2)to make the binder necessary to manufacture the concrete. One tone of fly ash can be utilized for manufacturing about 2.5 cubic meter of high quality Geo-polymer concrete.***

Test experiments proved as fly ash based Geo-polymer concrete has excellent compressive strength and flexural strength. the geo-polymer technology could reduce the CO2 emission to the atmosphere caused by cement and aggregates industries by about 80%. One of the efforts to produce more environmentally friendly concrete is to reduce the use of OPC by replacing the cement in concrete with geopolymers (i.e. 100% fly ash in place of OPC)."

LITERATURE REVIEW:

V. BHIKSHMA, M.KOTI REDDY

"Concluded that Efforts to produce more environmentally friendly concrete is to reduced the use of OPC by replacing the cement in concrete with geopolymer. In geopolymer concrete no cement is used, instead fly ash and alkaline solution such as sodium hydroxide (NaOH) Sodium silicate (Na2O, SiO2) and potassium hydroxide (KOH) are used to make the binder necessary to manufacture the concrete.

Geopolymer concrete has excellent compressive strength , suffers very low drying shrinkage, low creep, excellent resistant to sulphate attack and good acid resistance . Trial mixes were done and noted the properties of the concrete both in fresh state and in hardened conditions. The workability of the concrete in terms of slump and compacting

factor are observed to be excellent. The geopolymer concrete in fresh state observed to be highly viscous and good in workable.

The mechanical properties such as compressive strength , flexural strength and modulus of elasticity of concrete in hardened state. The test experiment proved that a concrete of compressive strength of 30 MPa could be achieved in geoploymer concrete by adopting alkaline solution to fly ash ratio of 0.50 at 16 molarity of NaOH. The 28 days compressive strength of the geopolymer concrete is measured upto 26.06 Mpa."

C.ANTONY JEYASEHAR

*"They are proposed that a alkaline liquid could be used to react with the silicon and aluminum in a source material of geological origin or in by-product materials such as fly ash was produced cementitious binders.The mechanical properties of geopolymer concrete such as compressive strength, split tensile strength and flexural strength have been found out and compared with ordinary Portland cement. The total five beams is casted of size 125*250*3200 mm and tested. The one beam out of five beams is cement concrete and remaining four beams is geopolymer concrete with alkali-activator solution. The load deflection and moment curvature behaviours was obtained from the experimental results and was compared with the analytical solution.The low calcium fly ash is used for casted geopolymer concrete. The strength of geopolymer concrete is increased with increasing alkali activator solution/ fly ash ratio. The highest compressivestrength of GPC is achieved in 28 days is 52.08N/mm2. The tensile strength is achieved in 28 days of GPC is 10.88."*

CONCLUSION

"1. After comparing compressive strength of cement concrete (M-15) and geopolymer concrete (12M) at 7, 14 and 28 days . It is concluded that Strength of gopolymer concrete is higher as compared to cement concrete. The compressive strength of geopolymer concrete in 28 days is 26.15 N/mm2and the compressive strength of cement concrete in 28 days is 17.14 N/mm2.

2. After comparing compressive strength of cement concrete (M-20) and geopolymer concrete (14M) at 7, 14 and 28 days . It is concluded that Strength of gopolymer concrete is higher as compared to cement concrete. The compressive strength of geopolymer concrete in 28 days is 27.23 N/mm2and the compressive strength of cement concrete in 28 days is 23.94 N/mm2.

3. After comparing compressive strength of cement concrete (M-25) and geopolymer concrete (16M) at 7, 14 and 28 days. It is concluded that Strength of gopolymer concrete is higher as compared to cement concrete. The compressive strength of geopolymer concrete in 28 days is 31.63 N/mm2and the compressive strength of cement concrete in 28 days is 28.09 N/mm2."

WHAT IS NEXT???

The idea of doing away with Portland Cement manufacturing, is leading to other breakthrough papers at: www.ECO-Home-Research.com.