

Nordic Sun Worldwide Ltd.

17 March 2012

The U. S. Securities and Exchange Commission
100 F Street, NE
Washington, D.C.
20549

Ref: S7-40-10 – Conflict Minerals

Dear Commission Members,

The global 3T minerals supply chain involves issues that are not easy to solve or sort out. I have been working in the mining sector in Rwanda for over two years and in the DRC since 2005. The proposal I am attaching as part of my comments, "3T Minerals Certification Enhancement" is my latest effort to contribute to the search for "creatively dynamic solutions" as I refer to them. Last week, I was able to officially pass this proposal to the US Embassy in Kigali as the first step in my effort to encourage dialogue about the global 3T minerals supply chain. My motivation in submitting this Enhancement proposal to your Commission is to provide you with insights into the current "realities on the ground" in the Great Lakes segment of the global 3T minerals supply chain as you finalize the Rules that will govern how American companies will be required to comply with the problems "conflict minerals" present to all of us.

Along with many others, it is my belief that the very beginning of the global 3T minerals supply chain will always be the weak link in any legislative enforcement of the global 3T "conflict minerals" supply chain. The US "conflict minerals" legislation has finally addressed an ignored global problem dating to the time when Leopold controlled the DRC. Because of this history, the global 3T minerals supply chain today functions much like a chameleon that is able to effortlessly change its conduct to circumvent any outside interference or meddling. The extreme poverty of the "super poor" and the vast amounts of money that are involved in the global 3T mining and minerals business requires very different solutions if they are going to help rather than hinder the search for solutions. In the case of identifying the presence of "conflict minerals" in the global 3T minerals supply chain, it is apparent that a more scientific component must be added to ALL 3T minerals and smelter certification schemes as soon as the minerals leave the ground if there will ever be any hope of identifying the presence of "conflict minerals" in the supply chain.

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The conclusion of my research reveals that a more tamper-proof, scientific method needs to be included in ALL of the minerals and smelter programs to help identify more accurately the country of origin of all 3T minerals prior to smelting. The additional conclusion is that if such a more scientific approach is not taken then ALL of the more than 5,600 US companies noted by your Commission will be negatively impacted by the "conflict minerals" legislation and will be required to file "Conflict Minerals Reports". The reality I will discuss below is that currently NONE of the global 3T minerals suppliers and smelters are able to provide reasonable, verifiable proof of the "country of origin" of the minerals they are smelting using the level of "due diligence" that your proposed Rules require.

The current high level of smuggling in the global 3T minerals supply chain cannot simply be ignored, as many end-user products companies and others are now willing to do. This smuggling reality will always allow questions to be raised about ANY 3T minerals that are mined anywhere in the world. Currently NO segment of the global 3T minerals and smelter supply chain can scientifically and conclusively prove that ALL of the minerals they are smelting do not contain "conflict minerals". According to the recent reports from the UN Group of Experts and the UNODC, there are still significant mineral flows that aid instability in the Great Lakes region. It would be naive to suggest these flows will ever be cut off unless a more robust, tamper-proof, scientific and especially inexpensive method of collecting a progressive series of "mineral fingerprints" is not inserted at each step of the mineral consolidation process prior to the minerals being smelted. Considering the recent and past history of the global 3T minerals business, it is imperative that a more robust check of the current, totally verbal and voluntary "traceability" certification schemes be included in these programs. While this may seem like a huge task, it must be noted that the experience of the Rwanda "bag and tag" program demonstrates that there can be progress made in this process. The addition of "mineral fingerprinting" will add the necessary missing scientific component to the process and allow each lot of minerals to be traced back to the original pit or mine of origin. If the relatively small numbers of global 3T minerals smelters were also included in this traceability process then a significantly lower number of American businesses will be required to file a "Conflict Minerals Report" as required by your proposed Rules.

The current reality of the global 3T minerals and smelter portions of the supply chain is that the haphazard introduction of incomplete solutions have given the American public a false sense that the "conflict minerals" issue has been solved. My investigations and research concludes this is not the case and that an even more troubling problem is looming for a much larger number of American businesses than your initial assessment suggested. The reality is that because there are so many doubts about the integrity of the global 3T minerals supply chain the implementation of the "conflict minerals" legislation will impose a huge financial burden, of more than \$300,000,000, on over 5,600 American businesses at a time when American business is already under threat from all sides due to the current global, economic slowdown. I also suggest that the impact of your proposed Rules will have an increasingly detrimental impact on American business unless a more "creatively dynamic solution" is designed to address the negative financial impact this legislation unnecessarily places on far too many American businesses.

The conclusion of my research is that the current ITRI sponsored minerals tagging process and the EICC sponsored smelter certification process are “fatally flawed” and should be abandoned unless the ideas contained in this Enhancement or a similar enhancement is added to the global 3T minerals and smelter certification programs. The most obvious reason for such a conclusion is that all of the certification schemes, as currently designed, solely rely on verbal and voluntary assurances as to the origin of the minerals that are being smelted and are never going to be able to provide the necessary level of “traceability” and “reasonable country of origin inquiry” assurances that are rightfully being proposed in your Rules.

The operational protocol I designed, developed and tested in Rwanda for over 2 years was able to demonstrate that a more tamper-proof, scientific basis for providing mineral traceability with the necessary levels of due diligence is operationally and technically possible. The protocol involved utilizing the “mineral fingerprinting” capabilities of the “Niton XRF Analyzer”. I was able to test this “mineral fingerprinting” functionality in normal operating conditions across the whole spectrum of situations that make up the Rwandan part of the global 3T minerals supply chain. The testing included analyzing mineral samples from miners who wanted to sell just a few kg of minerals to large mining operations that processed several tons of minerals each week. The conclusion of my research is that the addition of a progressive series of “mineral fingerprints” collected all along the global 3T minerals supply chain, up to the point of smelting, will allow companies to more accurately determine the exact location where ALL 3T minerals were mined. This Enhancement will help eliminate many of the human or purposeful errors that will always plague purely verbal and voluntary certification schemes like those hastily developed by ITRI and EICC.

The main conclusion of my research is that without the inclusion of the ideas contained in this Enhancement or a similar enhancement, ALL of the minerals and smelter certification programs should be scrapped because they will never be able to provide the necessary level of 3T mineral “country of origin” traceability that is required. It should be noted here that your proposed Rules state that if there are doubts raised concerning the inclusion of “conflict minerals” that may be included in the products companies are producing, then the companies will be required to prepare and submit a “Conflict Minerals Report”. I suggest that there will always be doubts as to the inclusion of “conflict minerals” in the global 3T minerals supply chain until a more scientifically based process is introduced to identify the possible presence of “conflict minerals”. Even the smelters who say they are not processing any 3T minerals from Africa cannot offer any verifiable proof that ALL the minerals they are smelting come from the locations that are noted on the country of origin documentation that arrives with the 3T mineral shipments.

One additional policy issue I bring up in the Enhancement proposal is the possibility that this US “conflict minerals” law along with all of these certification efforts appear to violate the free and open trade goals of the World Trade Organization (WTO) because of the “effective tax” and embargo

that is imposed on all African 3T minerals by the ITRI and EICC programs. These industry trade groups are funded by businesses and industries that are not independent and the programs they have developed have only worked to solidify their dominate market positions by currently engaging in monopolistic business practices. Currently all traders or smelters refuse to accept minerals that are certified by any scheme except the ones their own trade groups have established. We are now seeing that these groups are using their market dominance and monopolistic business practices to squeeze out of the marketplace anyone that is seen as competition. The "effective tax", embargo and monopolistic business practices are working to destroy the businesses and livelihood of hundreds and thousands of people. The "effective tax" and embargo are not assessed or imposed on the 3T minerals from any other country that produces minerals for the global 3T minerals supply chain. The "effective tax" is currently assessed only on Rwanda and Katanga, DR Congo minerals by external non-governmental organizations and makes these minerals more expensive in the global marketplace. The embargo of all other African 3T minerals hinders their global trade possibilities only because of the US "conflict minerals" law. These unintended realities appear to violate the open, global trade environment that the WTO is supposed to ensure. Due to the current consolidation in the regional minerals trading business and using history as a guide, this current reality will actually make it more difficult in the future to identify the presence of "conflict minerals" in the global 3T minerals supply chain.

My personal feeling is that we do have a problem with the global 3T minerals supply chain and while I also agree that comprehensive solutions are needed, I cannot accept that the current ITRI and EICC certification programs are providing the necessary independence or "creatively dynamic solutions" that are needed to address the "realities on the ground" in the Great Lakes region and all along the global 3T minerals supply chain.

I would also like to comment that there are already public relations campaigns underway by some very large US business and support groups who have announced, with much public fanfare, that they have solved the "conflict minerals" issue and that their end user products are completely free of conflict minerals and by extension in full compliance with your Rules. These public relations campaigns bring up many questions that the Commission must address. How can these companies and groups announce they are in compliance with your proposed Rules prior to those rules being adopted? The other troubling "reality on the ground", that I address in the Enhancement proposal, is that the minerals and smelter portions of the global 3T minerals supply chain cannot prove the country of origin of the minerals they are currently smelting with the reasonable level of due diligence that is required by your proposed Rules. These types of premature advertising campaigns do appear to be misleading the American public into buying more of their products when there is no reasonable basis for their being able to assert that there are no "conflict minerals" contained in the products they are selling.

My hope and the hope of all of the hundreds of thousands of families who live in one of the poorest regions of our world is that they can once again; and very quickly; return to the very basic livelihood living that dried up many months ago. Unfortunately we in the 3T minerals business have not been able to voluntarily develop "creatively dynamic solutions" to overcome certain "realities on the ground" at each step in the global 3T minerals supply chain. We have needed the "encouragement" this legislation provides so that we will take the necessary corrective actions to ensure that our business practices do not contribute to an already unacceptable human rights situation in the Great Lakes region of Africa. Until we can develop the business and political will to address the realities of "conflict minerals" in a way that ensures people matter more than profits, then all of these efforts will forever be more difficult than they need to be in reality.

The experience that has been gained in Rwanda over the last year with the "bag and tag" effort does give us hope that we are on the right path of "mineral traceability". I suggest that now is not the time to "water down" or dilute the good intentions of the US "conflict minerals" legislation in order to get back to a "business as usual" operating environment. Based on my regional experience I do believe that all that has been done so far is for business to offer a minor cosmetic change to hide a reality that the current business practices in the global 3T minerals supply chain have not substantially changed from what they were prior to 2009.

The attached Enhancement proposal is simply one small step – one idea – that I am putting forward to help address a very complex and challenging situation. On a personal note I would like to add that this Enhancement proposal was designed by an American working at the very beginning of the 3T minerals supply chain, using American technology to address problems that American legislation thrust on some of the most impoverished and troubled countries of the world. There were not any funds provided by the Niton organization, any other group or individual to guide the conclusions contained in the Enhancement proposal.

My belief is that American business has always excelled when we in business develop "creatively dynamic solutions" to solve challenges that also provide value and benefit to our world. If we approach this task of finding "creatively dynamic solutions" to the problems of "conflict minerals" as a quest for solutions that serve the common good of all the people who are impacted by the global 3T minerals supply chain; that stretches from the mines here in the Great Lakes region to the American consumer; then we will be more successful than we ever thought possible in 2009 when this "conflict minerals" law was enacted.

Copies of the Enhancement proposal can also be downloaded at our company website - www.nordicsw.com.

Thank you for your consideration,

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Managing Director

"3T MINERALS CERTIFICATION ENHANCEMENT" PROPOSAL

15 FEBRUARY 2012

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This Report can be downloaded at our company website listed above. Funding for this report did not come from any outside source.
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Background

The international community has determined that a more comprehensive response to the problem of “conflict minerals” needs to be developed. “Conflict Minerals” are referred to as the 3T & G minerals – Tin, Tantalum, Tungsten and Gold that originate from the eastern part of the Democratic Republic of the Congo (DRC). The United States enacted the “Congo Conflict Minerals Act of 2009” as part of the Dodd-Frank Wall Street Reform Act of 2009 to address the presence of conflict minerals in the 3TG minerals supply chain. The law requires that the 3TG minerals supply chain that stretches from where the minerals are mined in the DRC and the countries that border the DRC, including South Sudan, Uganda, Rwanda, Burundi, Tanzania, Malawi, Zambia, Angola, Congo, Central African Republic to smelters that are spread across many different parts of the global, must be able to identify any minerals or products that may contain “conflict minerals. The US Securities and Exchange Commission (SEC) is finalizing Rules that will guide “issuers” or publicly traded companies in the process of complying with the legislation. This “3T Minerals Certification Enhancement” proposal will only focus on the 3T portion of the supply chain, where the minerals are mined in the DRC and surrounding countries, however as will be explained, the technology and “mineral fingerprint” process can and should be expanded to also include the smelter level to more fully secure the 3T minerals supply chain.

The Securities and Exchange Commission Requirements

The SEC has proposed Rules to address the mandate they have been given by the Dodd-Frank legislation that state in part:

“The rules we are proposing would require an issuer to disclose whether its conflict minerals originated in the DRC countries. Under our proposed rules, an issuer would be required to make a reasonable country of origin inquiry as to whether its conflict minerals originated in the DRC countries,...

Under our proposed rules, if an issuer determines through its reasonable country of origin inquiry that any of its conflict minerals originated in the DRC countries, **or if the issuer is unable to determine after a reasonable country of origin inquiry** that any such conflict minerals did not originate in the DRC countries, our proposed rules would require the issuer to disclose this in the body of the annual report and disclose that the Conflict Minerals Report is furnished as an exhibit to the annual report.” (Emphasis mine) (17 CFR Parts – 229 and 249 Conflict Minerals; Proposed Rule)

The proposed Rules also state that when it becomes feasible, because of improved technology in the 3T minerals supply chain, the companies will be held to a higher standard of “due diligence” in order to comply with the requirements of the proposed Rules. This Enhancement proposal is based on a well known US technology solution, that has not been used for the purposes outlined in this proposal, but if used would greatly increase the ability of the 3T minerals supply chain to be certified as free of conflict minerals. This technology is also able to address the concerns that are expressed with the validity of the smelter certification segments of the supply chain to greatly enhance the ability of all of the 3T minerals supply chain to comply with the proposed SEC Rules. Currently, because of the high level of smuggling of conflict minerals and the widespread corruption in all the certification schemes, NONE of the certification systems can realistically certify the traceability of any of the 3T minerals and be used to complete a reasonable “country of origin” determination of being free of conflict minerals to the level of diligence that the

proposed SEC Rules require. Due to the reality of the significant level of corruption of the 3T minerals supply chain, the cost for companies to comply with the proposed SEC Rules will increase from approximately \$71,243,000 to \$356,215,000. Without this “3T Minerals Certification Enhancement” proposal there is currently NO verifiable mechanism to certify the country of origin of ANY of the 3T minerals in the supply chain.

Certifications Schemes

In order to assist governments and industry to comply with the US legislation, 4 main certification schemes and some smaller schemes, sponsored by global mineral supply companies, are either already operational or at some stage of implementation. The 3T minerals and smelter certification initiatives described below involve processes that the organizers and supporters had hoped would give some transparency, security and traceability to the 3T minerals supply chain. A 4th certification scheme is being developed by the International Conference on the Great Lakes Region (ICGLR) and will involve a regional certification approach. The reality of the 3T minerals supply chain in the Great Lakes region requires that even if a large private company “ring fences” its supply of a 3T mineral there is substantial evidence that supplies of the same mineral from other locations are easily able to contaminate their supply chain at many different points prior to the minerals being smelted. Smuggled conflict minerals that had their country of origin documentation changed at some point after the minerals left the DRC conflict zones is but one example of how the supply chain is contaminated. Without “mineral fingerprints” being taken of all 3T minerals prior to smelting there is no tamper-proof, verifiable basis to certify the products made from these or any 3T minerals anywhere in the world as being free of conflict minerals.

International Tin Research Institute (ITRI)

Currently there is only one process that was developed by ITRI and administered by their wholly owned organization iTSCi (ITRI Tin Supply Chain Initiative) that is used to “certify” minerals as being free of DRC conflict minerals. From their website the purpose of ITRI is “...the only organization dedicated to supporting the tin industry and expanding tin use. It is largely funded by tin producers and smelters.” (www.itri.co.uk).

The purpose of iTSCi from the ITRI website is:

“iTSCi (ITRI Tin Supply Chain Initiative) is a joint initiative that assists upstream companies (from mine to the smelter) to institute the actions, structures, and processes necessary to conform with the OECD Due Diligence Guidance (DDG) at a very practical level, including small and medium size enterprises, co-operatives and artisanal mine sites.”

Additionally:

“iTSCi offers mineral chain of custody information in keeping with the requirements of the EICC®-GeSI Conflict-Free Smelter Assessment Programme (CFS). Consequently iTSCi will help relevant US companies report on their due diligence efforts to the Securities and Exchange Commission (SEC), as required by the Dodd-Frank Act.”

“Since 2011, iTSCi has been in the implementation phase in Rwanda and the southern DRC province of Katanga. iTSCi may be extended to Burundi and Uganda, if funding is assured, and eventually the entire GLR.”

(http://www.itri.co.uk/index.php?option=com_zoo&view=item&Itemid=189)

The ITRI plan relies on a verbal and unverifiable declaration by the different suppliers up the mineral supply chain that no conflict minerals are contained in the minerals or shipments of 3T minerals they are supplying. This type of certification effort is referred to as “Bag and Tag”. As the minerals are purchased from different sources, they are placed into a bag and tagged with details of the supplier of the minerals, who verbally certifies that the minerals are from a specific location and assigned a unique serial number. In the case of a large mining operation, the employees of the company verbally certify that the minerals only come from their mining concession. The tagging is not done as the minerals are leaving the mining hole or site and in some cases the minerals are left untagged for several days until the tagger is able to return. During this time the minerals are left untagged and rely on voluntary assurances that the minerals are the same minerals that were untagged or are from the stated mining location. There is no way to know if the minerals, that look the same, are in fact the minerals that were left open. What would prevent conflict minerals that can be purchased at a discount, from being substituted for the non-conflict minerals? Even at large mining sites, there is no motivation for anyone to go to the added expense of ensuring that the minerals that are being tagged, are, in fact, coming from the location that is noted on the tagging paperwork.

The ITRI tagging certification scheme is totally dysfunctional by design since it is not able to verify in a more scientific and tamper-proof manner, the country of origin of any of the minerals that are tagged as coming from a specific mine location as the proposed SEC Rules explain should be the standard of “due diligence” exercised. The current high level of smuggling that occurs throughout the 3T minerals supply chain results in a situation where it is impossible for ITRI to certify that any of the 3T minerals that are being tagged and smelted are free of conflict minerals from the DRC. This inability to accurately certify the country of origin of 3T minerals prior to smelting means that none of the global 3T mineral supply chains can be certified as free of conflict minerals with the level of confidence and due diligence that is required by the proposed SEC Rules.

Global e-Sustainability Initiative (GeSI) and the Electronic Industry Citizenship Coalition (EICC)

The GeSI and EICC organizations have developed a voluntary smelter supply chain certification program that is similar to and exclusively relies on the ITRI verbal certification initiative to certify their own voluntary certification program of smelters and end user suppliers of Tin and Tantalum. Currently even the large specialized smelters of tantalum cannot certify, with the necessary level of due diligence, that the country of origin of any of the minerals they are smelting come from the locations that are noted on the shipping documentation. What is also needed at the smelter level is an ability to verify and analyze in a more scientific, tamper-proof manner each shipment of minerals prior to being smelted. While this proposal does not cover the smelter portion of the 3T mineral supply chain it is possible to include this segment of the supply chain without much difficulty.

German Federal Institute of Geosciences and Natural Resources (BGR)

BGR has been developing a Certified Trading Chain (CTC) program that will predominately focus on large mining operations in the Great Lakes region. Mineral samples from some of the mining sites are collected, again on a voluntary basis, and sent by the companies to Germany where the samples are analyzed with an electron microscope and compared with known samples from the same location. This analytical process is known as “mineral fingerprinting” and is an extremely accurate analysis of all of the very small quantities of trace minerals that are unique to each location, even within the same mine site. These “mineral fingerprints” are compiled into a database that can be used to compare against the “fingerprint” of samples of minerals after they have been shipped if there is a question that the shipment may contain conflict minerals. The main problems with this fingerprinting scheme are: a) it is only focused on the biggest mine sites; b) none of the samples are “certified” as having come from the sites that the company says is the location of the minerals; c) all of the samples have to be sent to Germany for analysis that can take weeks if not months to complete; d) the cost of each sampling is \$1,000.

The International Conference on the Great Lakes Region

The ICGLR is also developing a regional mineral certification mechanism but has yet to enter an implementation phase; and no timeline has been announced as to when this regional scheme will be introduced. It has always been assumed that the ITRI initiative will at some point be incorporated into the regional ICGLR certification mechanism. All of the benefits of this Enhancement proposal can be easily included into the ICGLR certification mechanism.

(<https://icglr.org/spip.php?article94>)

The Need for a More Dynamic Solution

There is always great difficulty in developing a comprehensive solution to a problem prior to the final regulations and Rules being released. Since Congress has recently announced the eminent release of the proposed SEC Rules there is very little doubt about the direction the Rules will follow. This Enhancement proposal will fully support the requirements of the proposed SEC Rules. This assurance is possible since the solution that is proposed to address an issue as complex as the 3T minerals supply chain was to develop a solution that is more dynamic and adaptable than the “realities on the ground” that all of the current certification system will also fail because they all rely on the same fatally flawed process to certify the next level in the 3T supply chain. The beginning stages of the minerals certification process cannot verify the exact location where the minerals were mined so all of the processes that rely of this first certification by default must also fail the proposed SEC Rules on the requirements for a “reasonable country of origin inquiry” of all minerals in the 3T minerals supply chain.

The current ITRI “bag and tag” solution is an example of a solution that is overly rigid by design and has not stopped the flow of conflict and smuggled 3T minerals into the supply chain. Some of the most significant shortcomings of the current operation of the ITRI certification process, that have been operational in Rwanda since April 2011 and Katanga Providence of the DRC, also have significant policy issues and concerns including: a) The smelters and end user corporations who own ITRI have instituted an embargo of all 3T minerals from Africa that are not tagged as part of the ITRI certification system. b) The smelters use the flawed ITRI certification process to

obtain their own smelter certification from GeSI/EICC. c) ITRI collects a \$500 per ton fee for all 3T minerals that are tagged in Rwanda and Katanga Province. This rises WTO restraint of trade issues since not all 3T minerals from other locations in the world are assessed such a fee. It appears to be another example of a program the developed economies have instituted to hamper economic growth in the developing economies. d) In Rwanda the ITRI smelter fee has generated approximately \$3,500,000 of revenue for ITRI in the last year alone. There has been very little benefit or even technical support that has flowed to Rwanda from ITRI with the imposition of this fee. e) The ITRI “bag and tag” system has failed to stop significant amounts of 3T conflict minerals from the DRC from being smuggled into the downstream 3T minerals supply chain. f) There is only one company that controls approximately 90% of the 3T minerals market in Katanga. This company has, in effect, been able to buy its way into the ITRI minerals certification scheme due to the size of the market it controls, and has used this market dominance to extend its control of that market. g) Other smaller mining companies in Uganda and elsewhere have been told by ITRI that it will cost an upfront fee of approximately \$35,000 to begin to tag their material in addition to the ongoing \$500 per ton fee. This amount of money is far too great for any small, private mining company to absorb.

All of these system and operating realities and shortcomings of the ITRI process combined with a total unwillingness on the part of ITRI to identify or entertain ANY modifications to their flawed certification scheme does call into question the sustainability and real motivation of ITRI in developing such a flawed certification effort. The volume of smuggled 3T minerals from the region and the long, well established “unofficial” trading links and the numerous little known trading routes makes it unrealistic to assume any “voluntary” verification mechanism will ever work in this region. The level of poverty and the willingness of companies in the mining and minerals process business in the region to increase their incomes by smuggling minerals or corrupting any voluntary certification scheme make it imperative that any system include a process that includes a technology portion of the process that is based on a more scientific, tamperproof mechanism if any of the 3T minerals supply chain is to be secured against conflict minerals. This “on the ground reality” of poverty and the minerals business in all of the Great Lakes region requires the introduction of a more dynamic process that is based on a more scientific approach to 3T minerals certification up and down the 3T minerals supply chain. A more dynamic addition to the mineral and smelter certification initiatives must have a scientific and economical way to certify as many of the 3T minerals that are mined and delivered to smelters anywhere in the world. The ease with which the whole 3T minerals supply chain is currently being corrupted makes it highly improbable that any company will be able to comply with the proposed SEC Rules regarding a “reasonable country of origin inquiry” utilizing the necessary level of due diligence.

The failure of all the certification systems to ensure that the minerals that are mined and smelted are from the location that the supplier voluntarily certifies is the location of the minerals, and that the minerals that are tagged are in fact the minerals that were originally tagged, is in reality a fatal flaw of all of the current certification initiatives. Without some modification or enhancement to the existing certification initiatives they should all be abandoned as unrealistic and not able to fulfill the requirements of the proposed SEC Rules.

The most significant challenge to modifying or changing the existing systems is the resistance that will come from most of the participants of the existing certification systems for any number of reasons that can include current program preservation and the income it produces or outright illegal business practices.

The current situation with the 3T minerals supply chain in the Great Lakes region is that there are still large amounts of smuggled 3T minerals into the ITRI and GeSI/EICC certified trading chains. The illegal and underground 3T minerals trading chains are very skilled at modifying their response to any process as rigid as the ITRI “bag and tag” system. This practical realization of the ineffectiveness of all of the 3T minerals certification systems (ITRI, GeSI/EICC and BGR) that are based solely on voluntary certification reveals that there must be changes or modifications introduced to assist in making these systems fulfill their mandates. The current, extremely profitable and well established illegal and underground 3T mineral supply chains that date back to the colonial period, and the extreme poverty of the region, are two motivating realities that will sabotage and corrupt any conflict minerals certification program that does not realistically address the “realities on the ground”. **None of the current voluntary certification schemes are able to adequately address the problem of the introduction of conflict minerals into the 3T minerals supply chain.** The pragmatic reality of the 3T minerals trade is that unless there is a more scientific and tamperproof component to the minerals certification process, that begins at a point as close to the entry point of the minerals into the supply chain as possible, there cannot be any verifiable solution to the entry of conflict minerals into any of the global 3T minerals supply chain.

The focus of this proposal that is called the “3T Minerals Certification Enhancement” is a suggested addition or enhancement to all of the current or future 3T minerals certification programs. The main design challenge for this proposal was in finding a balance between the ideal world and the practical reality of artisanal mining that is the preferred method for mining all 3T minerals in the Great Lakes region. This Enhancement proposal will seamlessly fit into any and all of the programs or proposals that have been or will be introduced and provide a more robust, verifiable layer to the certification processes. This proposal adds a more dynamic, scientific and tamperproof solution that has been field tested and refined in Rwanda for over 2 years. This is a longer testing process than any of the 3T mineral certification schemes have gone through.

The 3T Minerals Certification Enhancement

The first step in designing this Enhancement was to design an operational process that can economically and comprehensively analyze as many of the 3T minerals that are shipped from the region as possible. A realistic enhancement to the certification process must offer tamperproof, verifiable evidence that the minerals that are being or have been, introduced into the supply chain, are the minerals from the location that the supplier informs the buying agent, company or the government entity as being the origin of the minerals. There are a whole series of consolidations or “amalgamations” of the minerals that occur from the time the minerals leave the ground at the mine site until the time they reach the smelter. If a reasonable country of origin inquiry is to be realistically undertaken, as required by the proposed SEC Rules, then there must

be an economical way to collect a “**mineral fingerprint**” at each step in the mineral consolidation process and compare these “mineral fingerprints” with those that were collected earlier until the minerals are smelted. While this proposal only covers analysis of 3T minerals in the countries that border the DRC, it is possible and necessary to extend this Enhancement proposal to all the smelters that receive 3T minerals and need to comply with the proposed SEC Rules. The cost would be considerably less than if all SEC reporting companies must file a “Conflict Minerals Report” because of the current dysfunctional state of all of the 3T minerals and smelter certification processes.

This proposal suggests that the addition of a low acquisition cost mineral analyzer with a reasonably detailed geologic mineralization fingerprinting capability that included GPS location data and certification tag data in a tamper-proof format will add the necessary missing step to all the 3T minerals and smelter certification systems. This analytical testing and mineral fingerprinting can be carried out anywhere along the 3T minerals supply chain from the individual mine hole or site until the minerals are smelted will add the missing verifiable step to all of the certification systems. The Enhancement can also assist in addressing the significant paperwork burden that the current ITRI process places on the governments and companies that must implement and monitor the current “bag and tag” process. ITRI had originally sold the current certification system as being “very simple - just a pencil and a piece of paper”. After almost a year of field testing, ITRI now admits that the significant paperwork burden of their tagging system places an unsustainable burden on businesses and the government of Rwanda.

The inclusion of the **Niton XRF handheld analyzers** in the certification process to collect mineral analysis and fingerprint data is the technology foundation that will allow all of the certification schemes to function at a significantly higher level of accuracy and due diligence than is currently possible. The Niton analyzers are able to capture, store and compare the mineral fingerprint of the minerals all along the 3T supply chain, from when they leave the ground until the point they are smelted. This “mineral fingerprint” information can then be used to compare the new “mineral fingerprint” data of minerals as they are sold or consolidated, at each step along the 3T minerals supply chain. At each step of the minerals consolidation process the “mineral fingerprint” of the shipment slightly changes, so constantly updated “mineral fingerprint” data must be collected if the introduction of smuggled or conflict minerals are to be eliminated.

The data for this Enhancement proposal was conducted over a 2 year period of actual field testing at two private concessions in Rwanda that together covered over 65,000 ha. and included over 3,500 artisanal miners. The testing was carried out in actual field mineral purchasing and mining operations situations in as natural a setting as is possible. The sampling involved collecting and comparing several thousand mineral fingerprints that were generated during the course of normal mining operations. The samples included purchases of just a few kg of production to many tons a week.

The ability to generate accurate mineral assay and fingerprint data and create both an electronic and paper record in the field and to be able to retest at any point of the 3T mineral supply chain has always been the unfulfilled intent of all of the minerals certification processes. This 3T minerals Enhancement proposal is able to seamlessly address some of the shortcomings of the

existing certification processes and supply some of the missing ingredients to the existing mineral and smelter certification processes so they can better fulfill the “due diligence” requirements of the proposed SEC Rules. The audit requirements of the SEC Rules, that will be governed by the GAO Government Audit Standards December 2011 version (Gao-12-331 G), will discover very quickly that all of the current 3T minerals and smelters certification systems should fail the proposed SEC Rules based on a reasonable country of origin inquiry of the minerals in the 3T supply chain.

Testing Procedure of the Niton XRF Analyzer

The Niton XRF analyzer that was used in this 2 year testing program collected both mineral analysis and mineral fingerprinting data and fingerprint comparing evaluations in the same unit. The 3T mineral fingerprint acquisition process involved analyzing 3T mineralization data from primary mine hole or site locations and secure stock locations all along the initial 3T mineral supply chain in Rwanda. This stored mineral fingerprint data was then compared with mineral analysis data acquired during numerous mineral consolidations and 3T mineral analysis of bulk shipments as they were being processed prior to export.

Results

The Niton XRF analyzer was deemed to be acceptable because of the ability to provide an inexpensive, tamper-proof, field generated 3T mineral analysis, “mineral fingerprint” data and compare analysis in the same unit. What was not part of this 2 year testing process were the inclusion of GPS data acquisition and the production of a hard copy paper print out of the results in the field. These inexpensive additions have been included in this proposal because they will allow another check of the integrity of the tagging process and give the artisanal miners in the field a paper copy of the minerals they have sold. With the included Bluetooth capabilities, the Niton XRF units are able to electronically transmit, in real time, each record to a central database as the mineral analysis or fingerprint data of a three of the 3T minerals as the data is being acquired. This added step will allow for a more timely analysis of the data as the mineral bags are being tagged. (Full technical specifications for the Niton XRF analyzers can be found on the Thermo Scientific website. www.thermofisher.com) The stored results can then be recertified and the results compared at the next consolidation step in the 3T minerals supply chain. The same minerals can even be analyzed at any smelter location. All of these electronic records will then become part of the documentation process to support the audit requirements of all of the certification systems. If there is a question of the origin of the minerals due to a fingerprint mismatch or corrupted samples attempting to be introduced at any point along the supply chain, alerts can be triggered and additional evaluation of the data and the minerals can be instituted prior to any of the 3T minerals being smelted.

The handheld Niton (XRF) analyzers were judged to have a very low cost of deployment. They also allow practical portability to match very demanding field and logistical considerations. The dynamic and challenging field conditions in Rwanda and the Great Lakes region, where it can take hours to get on site, and where very limited access to electrical power is the normal reality, require a technology solution that has already been fully field tested in mining in Africa. The ability to have a very sophisticated, tamperproof analysis of all 3 of the 3T minerals will enhance the ability of the certification systems to thwart corruption and fulfill the requirements of the

proposed SEC Rules. Since a mineral analysis and fingerprint compare analysis only takes from 1 to 3 minutes, they are economical enough to allow for repeated reanalysis at any number of points as the minerals move through the supply chain.

All of these reasons lead to the conclusion that the Niton XRF analyzers are uniquely suited for these types of 3T mineral certification projects.

Operational Considerations

The best operational approach to take with this Enhancement proposal will be to deploy the Niton analyzers as part of government or administrative tagging operation in as many locations as is reasonable. A detailed assessment will have to be undertaken to ascertain the exact number of analyzers that will be needed. There can be sufficient operational safeguards put in place to ensure the safety and integrity of a process that will vary with each country. Since ITRI tagging has been operational in Rwanda for almost a year, it is reasonable and pragmatic for Rwanda to be the first to institute this “3T Minerals Certification Enhancement” proposal. The other countries that are covered by the US legislation can be added in fairly quick succession.

The chart below gives an ESTIMATE of the numbers of Niton XRF units that seem reasonable to ensure the integrity of all of the certification systems.

Rwanda	50
DR Congo	200
Uganda	30
Burundi	10
Tanzania	10
Zambia	20
Angola	15
South Sudan	5
Central African Republic	5
Malawi	5
Total Units	350

Financial Considerations

The cost of the Niton XRF analyzer with all necessary attachments will be approximately \$50,000 each at full retail price. It is anticipated that this price can be reduced to \$40,000 due to the quantity ordered and other considerations. The total estimated capital cost of this project would therefore be $\$40,000 \times 350 = \$14,000,000$ or \$17,500,000 if the full \$50,000 per unit cost becomes the final price of the units.

While this may seem like a high cost, it should be remembered that the final cost of the investment in Niton XRF units will be reduced over time as fees are collected as part of the certification processes. If we use Rwanda as an example, there are approximately 7,200 ton of

minerals that are exported from the country each year. If the investment cost of the 50 Niton units for Rwanda is amortized over a 5 year period, the cost would be approximately \$55 per ton. This is a very small portion of the more than \$800 per ton that is currently being collected for a certification system that is unable to stop the smuggling and introduction of conflict minerals into the 3T minerals supply chain. It should also be noted that a project of this size will take several months to become fully operational so the total investment cost of the 350 units will be spread over several months.

It must also be noted that this investment expense is significantly less than the cost of having to include a much higher number of companies in the proposed SEC Rules reporting mechanism because there can be no reasonably accurate country of origin determination of any of the 3T minerals in the global supply chain with the current dysfunctional minerals and smelter certification schemes.

Conclusion

The proposed SEC Rules on conflict minerals that is the reason for all of the certification schemes is quite clear that there will need to be a “reasonable country of origin” determination made for all minerals and end products that rely of 3T minerals. This Enhancement proposal will allow all of the certification schemes to comply with this “reasonable due diligence” requirement.

The ITRI tagging system has been operational in Rwanda for almost a year. The most obvious conclusion of this tagging system is that t is not working. An enhancement is necessary to more realistically stop the smuggling of conflict minerals into the 3T minerals supply chain that will only intensify as the ITRI tagging systems is expanded in the near future to all of the DRC and other countries in the region covered by the proposed SEC Rules. The integrity of the whole 3T minerals supply chain is at risk because there is currently no way to realistically identify the presence of conflict minerals in ANY of the global 3T minerals supply chain. The reality of poverty, and the history of mineral production in the region, demonstrate that a more robust minerals certification enhancement is required if the 3T minerals industry is going to be secured from the introduction of conflict minerals and confidence once again restored to the general public that the flow of conflict minerals has been identified and hopefully stopped from being included in the products they buy in the US.

What is missing in all of the existing minerals and smelters certification initiatives has been a realistic and practical mechanism that identifies the presence of conflict minerals, encourages transparency, is economically feasible, and allows for the “reality on the ground” in a minerals supply chain that stretches from the Great Lakes Region of Africa to the smelters, who are spread all around the world. None of the existing certification initiatives are robust and dynamic enough to answer the challenges that the 3T minerals supply chain presents without instituting this Enhancement proposal.

The sophisticated level of smuggled 3T minerals into the supply chain and the profit motive that is always present with 3T minerals, contributes to the reality that it is impossible for any portion of the 3T minerals supply chain, especially the smelter portion, to be certified as free of conflict

minerals without this “3T Minerals Certification Enhancement” proposal being added to the 3T minerals certification processes.

This “3T Minerals Certification Enhancement” proposal adds a more dynamic, scientific and tamperproof solution that has been field tested and refined in Rwanda for over 2 years. While this Enhancement proposal is not a final or complete solution to the problems of conflict minerals, it is a more comprehensive solution and it can be introduced at all points along the 3T minerals supply chain from the mine site to the smelter. The Niton XRF technology is realistically able to supply all of the very critical missing elements to all of the certification processes.

The most important quality this proposal fosters is the ability of the mining industry in some of the poorest regions of the world to once again begin to function and offer increased livelihood to the hundreds of thousands of the population who rely on the 3T minerals trade for a better livelihood.