Independent Process Observer

Quarterly Report

Sudbury Soils Study | Étude des sols sudburois
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REPORT #23

(June 2009)

By Franco Mariotti

This is my final report as the Independent Process Observer for the Sudbury Soils Study. It focuses on the following three aspects of the study:

a) Comments on the results of the release of the Ecological Risk Assessment;

b) Final comments on the Sudbury Soils Study; and

c) Recommendations for future community health risk and environmental risk assessments.

It is important to remember as you read this report that my role as the Independent Process Observer in the Sudbury Soils Study is **strictly to comment on the process, not** on its scientific methods and conclusions.

I began my role as the Independent Process Observer in January of 2002 and it will end with the release of this report. That being said, I will always welcome and encourage any questions, thoughts and opinions now and in the future.

Brief Background:

The Sudbury Soils Study is the largest study of its kind in Canada in the scope of the assessment, in the number of samples assessed and in the extent of the land mass it covered. In the beginning, the people directly involved in the Sudbury Soils Study assumed that it would last three to four years and possibly cost five to six million dollars. It has lasted eight years and the cost to Vale INCO and Xstrata Nickel has been nearly 15 million dollars.

A) Comments on the Public Release of the Ecological Risk Assessment

The third and final component of the Sudbury Soils Study, the Ecological Risk Assessment, was released to the public on March 31, 2009 in the Vale INCO Cavern at Science North. Dr. Chris Wren of the SARA Group (the scientists who conducted the Sudbury Soils Study) presented the results in a summary fashion during two presentations held between 2 p.m. and 8 p.m. The presentations were clear and the results were easy to understand.
A large number of people were present at this public forum; however, many of them were directly or indirectly involved with the Sudbury Soils Study. There were a few citizens in attendance and several asked questions of the SARA Group scientists during the question and answer period. It was disappointing that there were not more members of the Sudbury community at the event.

Dr. Stella Swanson, an environmental toxicologist and the ERA scientific advisor, was present to answer questions after the public presentations. In the past when Dr. Swanson was in Sudbury and present at both Technical Committee (TC) meetings and Public Advisory Committee (PAC) meetings, she had proven to be very useful and articulate in explaining certain aspects of environmental risk assessments. Unfortunately I don't think many members of the public fully appreciated or understood her presence at the ERA release.

Also at the same public forum, Dr. Stephen Monet from the City of Greater Sudbury, informed the public of a Biodiversity Plan that outlines the next steps to be taken by the mining companies and the City of Greater Sudbury to involve the public in addressing some of the key issues identified in the ERA.

Weeks later some criticism was directed at the SARA Group for presenting results that were too general and lacking in detail. The purpose of a public forum that releases the results of an ecological risk assessment that took three to four years to complete is intended at best to **highlight and summarize** the key results of such a study. Interested members of the public were encouraged to read the 50- page Summary of Volume III: Ecological Risk Assessment for further details and specifics.

Overall, the public release of the Ecological Risk Assessment was well done. The information presented was a brief summary that was clear and to the point. The public was provided with an opportunity to respond. I do believe, however, that this should not be the only public engagement after the release of the Ecological Risk Assessment results. *Please see point #4 in section B of this report*.

Members of the public have been given five months (from April 3 to September 4, 2009) to review the ERA documents. This was the same review period given following the Human Health Risk Assessment (HHRA) final report. I thought this was a fair time period to allow for public response.

B) Final Comments on the Sudbury Soils Study

The Sudbury Soils Study has, in many ways, been a ground-breaking study for Ontario and perhaps for Canada, in the following ways:

- All key members of the Sudbury Soils Study were at the decision-making table and were identified as the Technical Committee.
- The terms of reference for the position of the Independent Process Observer's role stressed that I was to be present as a watchdog and not be connected to any member of the Technical Committee.
- Several observers, such as the Independent Process Observer and the Public Advisory Committee chair were almost always present at all Technical Committee meetings (the decision-making body for the study) with union observers occasionally present.
- All key decisions made by the Technical Committee were made by consensus. This was a crucial part of the process that ensured understanding and support for all decisions made, leading to the final conclusions of the report.

The following comments reflect my overall impressions of the Sudbury Soils Study after eight years as the Independent Process Observer:

1. Technical Committee meetings were held primarily behind closed doors. Did this fact impede one of the primary purposes of the Sudbury Soils Study which was to have an open, fair and transparent process to the public?

In Ontario, the Sudbury Soils Study was ground-breaking in its approach. The Technical Committee was the decision-making body and its makeup was such that four of the six members represented public institutions: the Sudbury & District Health Unit, the Ministry of the Environment, the City of Greater Sudbury and Health Canada & Inuit Health Branch. The other two members were the mining companies: Vale INCO and Xstrata Nickel.

All of these parties sat at the same table to discuss scientific methods and solutions and to attain consensus to move forward. It was absolutely essential that they could speak freely and openly about their positions. In my opinion, if these meetings were held in a setting with the public and the media attending, the atmosphere of openness and trust would have been compromised and at worse stifled!

I have witnessed lengthy discussions and have been privy to arguments that may have been interesting headlines had they been made public, **but** they would not have been useful to the interests and goals of this study. I believe that the right of Sudburians to know what the impacts of chemicals of concern in the soil have on our health would have been compromised or redirected by distractions irrelevant to this issue. I have always made a conscientious decision in my reporting to comment on the decisions **made** and **not** on the details of the discussions that would not have served any purpose whatsoever.

2. Did the Sudbury Soils Study process ensure that the best interests of the public were served and that information was not withheld?

The Technical Committee meetings were closed to the public with the exception of the first hour when members of the public were able to ask questions directly to the TC members. The presence of an independent process observer who had no connection to any member of the Technical Committee was a key element of maintaining public trust in the process. My presence, as well as the presence of the Public Advisory Committee chair (and many times PAC members), ensured that there were several independent observers. Furthermore, both the Steelworkers' Union and the Mine Mill Union were always invited to have observers at these meetings, although they were not always present.

The criticism by some that the Sudbury Soils Study process was dominated by the mining companies because of their participation at the Technical Committee is false. The presence of all the observers mentioned above ensured that no Technical Committee member dominated or forced the opinion of any other member. The accusation that the mining companies dominated the process is not based on factual evidence whatsoever and is contrary to the findings of all the observers.

3. Was the Sudbury Soils Study a fair and open process?

The process assured fair and open discussion with the ultimate decisions made for the benefit of the public's best interest in several key aspects:

- First, the scientists selected to conduct the scientific study were chosen in an open bid process that was international in scope. Advertisements for qualified bodies were circulated in Canada and the USA.
- Secondly, the entire study was **peer-reviewed** by TERA, an international team of respected toxicological experts whose mandate was to provide qualified expertise to conduct a review of the study.
- Thirdly, to ensure transparency, several observers including the Independent Process Observer, the Public Advisory Committee chair and two mining union representatives were always invited to be present at all the Technical Committee meetings.

4. Did the Sudbury Soils Study process provide ample opportunity for public engagement in the study?

I want to respond to this key issue in two ways. First, the public could have engaged in the study in several ways - by attending PAC meetings, by attending the first hour of all TC meetings and by attending open house events that were held several times across the Sudbury area. In the first few years, PAC meetings were held in many wards to accommodate the public so they would not have to travel far to attend. Due to the low public turnout, no attendance in some cases, the PAC meetings were eventually held at a central location, Science North, and during the last few years, at Tom Davies Square. Public

attendance at PAC meetings was very high during the first year of the study, but soon after dwindled to just a few or none at every meeting.

This model of public participation is the traditional way in which to engage the public in a community study. Based on this model, the public was provided with the opportunity to engage in the Sudbury Soils Study process. However, due to the low public response, it is time to review this traditional approach to public engagement and this leads to my second point.

The reality of the Sudbury Soils Study, or for that matter any major risk assessment process, is that meetings are long, tedious and, frankly, at times very boring. It would have been a challenge for any member of the public to voluntarily attend all of the PAC meetings during the eight-year timeline of this study.

In retrospect other methods of public engagement may have been more meaningful. New methods of engaging the public on key societal topics are beginning to emerge. In 2007, Ms. Chantal Barriault and Dr. Phillippa Spoel from Science North and Laurentian University respectively presented the Technical Committee with a model from Denmark (*) that the Sudbury Soils Study could emulate. That country is using a new approach to solicit and encourage public involvement on key science issues that impact their society. The model fosters a process where members of the public apply to sit on an advisory panel whose ultimate goal is to provide **decision-makers** with recommendations on key issues. Members are chosen through an interview process and reflect a cross-section of the community. The panel members have to commit to specific time requirements to attend meetings, workshops and public forums. Several weekends are set aside for the experts to inform and update panel members on the topic. Panel members then meet in workshop sessions to discuss the topic and make recommendations which are presented to the general public for comment.

(*) from a paper "Danish participatory models Scenario workshops and consensus conferences: towards more democratic decision-making"
By Ida-Elisabeth Andersen and Birgit Jaeger

Note: A similar model is being undertaken by the City of Greater Sudbury for their Biodiversity Plan in response to the Ecological Risk Assessment results.

5. Was the Public engaged in the Sudbury Soils Study?

Overall public engagement in the Sudbury Soils Study was, in my opinion, very disappointing. Members of the public rarely took advantage of opportunities to ask questions at TC meetings and only one member of the public consistently attended most of the Public Advisory Committee meetings in the last few years of the study.

In 2008 during the last few weeks of the public response period following the Human Health Risk Assessment release, a new community group, the ***Community Committee on the Sudbury Soils Study***, came forward to vocalize their concerns about the study. I mention

this group specifically because, in my opinion, they were successful in rallying more public response to the HHRA results than what was received at any other time in the process.

Overall, in my opinion, public engagement in the Sudbury Soils Study was poor.

Below is the record for the number and types of public engagements during the eight years of the Sudbury Soils Study:

- 62 Technical Committee Meetings
- 39 Public Advisory Committee Meetings

  6 Annual Reports (available on the Sudbury Soils Study website)
- 6 Open Houses

  July 31, 2002

  June11, 2003

  November 25, 2003

  February 9, 2005

  May 13, 14, 15 2009 –HHRA Release

  March 31, 2009 – ERA Release
- 23 Independent Process Observer Reports published to date with 1,000 recipients for each mailing
- Website – updated continually with:
  - Announcements from all PAC meetings, TC meetings and Open Houses
  - Frequently asked questions
  - All meeting minutes
  - Newsletters, Independent Process Observer Reports, news releases and news articles
  - Information regarding how the public could contact the SARA Group, either by email at questions@sudburysoilsstudy.com or by calling 1-866-315-0228
  - All final reports, summary reports and online public comment information
- 550 Responses or queries received either by the 1-866 phone number or e-mail between January 2003 and June 2009.
- 10 *Update Newsletters* published to date with 40,000 circulated through a local newspaper (Northern Life). It was also mailed to 1,000 recipients.
- 2 Results Newsletters, (one for the ERA and one for the HHRA)

- 2 Physicians Packages published and provided to all physicians, nurses and health care professionals in the Sudbury area with an invitation to contact the SARA Group with any questions.

- 12 First Nations Meetings

6. Did the Sudbury Soils Study provide ample time for public response appropriately to the HHRA and ERA results?

A five-month time period was provided for public response after the HHRA and ERA releases. In my opinion this was ample time for members of the public to learn about and understand the results. Both summary reports, which were approximately 50 pages each, were well written using language that generally speaking, most could understand. The complete reports, 1,000 plus pages, were readily available to the public through the soils study website and at all branches of the Sudbury Public Library.

It is unlikely that any one person could completely understand all of the results after one reading. They are the type of documents that need to be reread in order for the information to be digested. Five months is a fair time period, in my opinion, for most people to read and understand the reports.

A criticism that was directed at the Technical Committee suggested that the five-month review period did not allow adequate time for any outside group to conduct their independent scientific review of the study. My response to this is that the Sudbury Soils Study process included outside peer review with the selection of an international scientific peer review team through an impartial, arm's length process so there was no need to obtain an additional review of the study. Please refer to point #10 in this section.

7. The Public Advisory Committee

The very first thing that must be said is **THANK YOU** to all the members, both past and present, of the Public Advisory Committee. My gratitude extends especially to those members who have been involved in the Sudbury Soils Study literally from the beginning (January 2002) to the present. They have remained involved for so long with no monetary gain and have kept the best interests of the community in the forefront.

Special recognition goes to the chair, John Hogenbirk, for guiding the Public Advisory Committee through six out of its eight years and for being another observer at Technical Committee meetings. At times other members of the PAC also sat in on Technical Committee meetings and acted as independent observers. Recognition also goes to Ivan Filion who chaired the PAC for the first two years and guided them through their infancy and learning process.

My observation is that all PAC members, throughout the study, have been conscientious in their roles as representatives for all Sudburians in keeping the interests of the public as their key focus. PAC members were honest, sincere and successful at representing and speaking up for public concerns during the Sudbury Soils Study.

From the beginning PAC members had an ambitious list of goals to meet:

- They had to **learn** to be comfortable with the technical language of risk assessment.
- They had to attend regular meetings, in the first year once every four months and these increased to once every two months. In between these meetings, there were public forums, open houses and meetings that many PAC members also attended.
- Whenever possible they acted as a sounding board for key TC decisions and reflected public interest and perception.

If there is any shortcoming with the role of the PAC it is that in the busiest days of the Sudbury Soils Study, the Technical Committee was making decisions rapidly and frequently. The PAC responded to this by increasing their quarterly meetings to once every two months. Even with this increase in meeting frequency, the PAC could not have possibly commented or advised on all decisions made by the Technical Committee. The point I am making is that the PAC didn't always have an opportunity to reflect on and provide input on all decisions made by the Technical Committee. Monthly PAC meetings would have been an ideal solution during this extremely busy period of the study; however, I will be the first to admit that such demands on members would have been unfair and unrealistic. Had the PAC pursued such a course, the demand on PAC members' time (as volunteers) would more than likely have resulted in a frequent turnover of members.

8. Was the role of the Scientific Advisors fully utilized?

Two scientific advisors were used throughout the Sudbury Soils Study and their role was to guide and provide suggestions to the science methodology. Dr. Ron Breacher was the science advisor for the Human Health Risk Assessment and Dr. Stella Swanson was the advisor for the Environmental Risk Assessment. Both made appearances at Public Advisory meetings early on in the process. It became evident that both were excellent communicators who clearly articulated all answers to questions that were directed to them. In the past, PAC members and I have suggested that the public have more access to them, the assumption being that they would further contribute to the public understanding of certain technical aspects of risk management. In the end I believe they were under-utilized and could have contributed more positively to the public's understanding of the soils study.

9. The role of the International Expert Peer Review scientists.

One of the greatest assets of the Sudbury Soils Study was the manner in which the International Expert Peer Review scientists were chosen and utilized. Peer review is essential and mandatory in any scientific study. It is essential that a research project be

scrutinized by scientific peers, scientists who were not involved in the study. This standard approach to scrutinizing the science behind a study is crucial to ensuring the **validity** and impartiality of the study.

The method used to choose the international team of scientific reviewers for the Sudbury Soils Study is an excellent example of impartiality. To ensure a total **arm's length** approach, a widely distributed advertisement went out to request scientific organizations to bid on the proposal. The objective was to find and create two teams of scientists, experts in their fields. One team was responsible for reviewing the Human Health Risk Assessment and the other the Ecological Risk Assessment.

The scientific organization ultimately chosen was the TERA Group from the United States. Their role was to choose an international panel of reviewers (IERP – Independent Expert Review Panel) as well as to act as the **middle person** between the Technical Committee and these scientific reviewers. The TERA group was in contact with the Sudbury Soils Study through only one representative of the Technical Committee, Dr. Stephen Monet (representative of the City of Greater Sudbury). The scientists of each Peer Review team met only once face-to-face with the SARA Group and that was to question them on the science in the soils study.

The meetings were intense and the SARA Group scientists were **grilled** on the methodologies and science behind each study. The meetings lasted one and a half days and were held at College Boreal. Only members of the Sudbury Soils Study, PAC members and I as the Independent Process Observer, were allowed to attend. After each meeting the International Expert Review Panel met with the press to inform them of their overall opinions. According to members of the Technical Committee, the reason the Peer Review process was not open to the public was that the mining companies were concerned with disclosing proprietarial information to competitors. Although a valid concern, I did not, however, observe any such disclosures.

In my interactions with members of the public on the topic of the International Expert Peer Review, the significance of how the scientific advisors were chosen and utilized was poorly understood and not fully appreciated by the public at large. This part of the Sudbury Soils Study process should not be underestimated; from my perspective it was a crucial and an essential aspect in the validity of the science behind the Sudbury Soils Study.

10. Should the public have had more access to the International Expert Review Panel?

Yes. Members of the PAC and I suggested that the public be given the opportunity to ask questions of the International Expert Review Panel but this never happened. If it had, the public's understanding and appreciation of their conclusions would have, in my opinion, added further validity to the scientific conclusions of the Sudbury Soils Study.

11. Were members of the public given ample opportunities to respond to the HHRA and ERA results?

At one of the Public Advisory Committee meetings, several members of the public expressed concern that after the release of the ERA and the HHRA, there was no opportunity for the public to engage the SARA Group scientists for additional discussions except by mail or e-mail. Furthermore, it was suggested that once the public had adequate time to understand the results, they should have been given the opportunity to ask questions directly of the SARA Group scientists again.

I think this was an excellent idea and has its merits. A follow-up public forum would have provided two key opportunities. First, the chance to ask questions directly with the scientists who conducted the study which would have created an opportunity for members of the public to receive answers directly and in a fashion that would have been interactive and engaging. Answers often raise additional questions which can then be answered immediately. The use of mail or e-mail does not allow for this kind of two-way interaction that brings immediacy to an issue.

Secondly, a final public forum has the potential of creating **closure** to the study instead of continued and lengthy mailings between the two groups.

This opportunity for face-to-face dialogue did arise six weeks after the release of the ERA results when Dr. Chris Wren and Dr. Ruth Hall attended a PAC meeting. A more detailed presentation was made and members of the public in attendance were able to question and discuss specific points with these scientists. Unfortunately, public attendance at this meeting was poor (about ten people), even though it had been advertised.

12. Should the mining companies, Vale INCO and Xstrata Nickel, have been a part of the decision-making process as members of the Technical Committee?

This question has been repeated several times during the eight years of the study. I want to state my position on this clearly. The mining companies would have to be a part of the solution. Furthermore, without a doubt, the companies that have caused the environmental degradation in Sudbury need to pay for any scientific research that aims to study its impact on human health and the environment. This responsibility has never been an issue with the companies.

I have heard criticism suggesting that the mining companies would dominate the discussions and sway the consensus solutions their way. The role of the Independent Process Observer and the Public Advisory Committee was to prevent that from occurring! My role was to observe and ensure that any **arm twisting** or threats by any Technical Committee member would not occur. If it had, I would have had no hesitation expressing my concerns and exposing any such unacceptable behaviour to the media and all parties were well aware of this. I took this particular part of my responsibility very seriously.

I have never witnessed an attempt by any Technical Committee member to bribe, sway unjustly or threaten any other member on a particular decision. The consensus approach was a fair and just method that ultimately led to every member understanding why and how key decisions were attained. Equally important is that each member was a part of that decision.

13. What about Health Canada's role?

From the onset, the Technical Committee viewed Health Canada's role as a full member of their committee. Health Canada & Inuit Health Branch had a representative sitting on the Technical Committee since the inception of the study and this representative stated that his presence was more that of an observer than a full member. Other Technical Committee members believed that Health Canada should be a full member because they represent health issues on First Nations lands.

The issue of what capacity Health Canada played in the Sudbury Soils Study has arisen on numerous occasions and remains to this day unclear since they have never commented on either the HHRA or the ERA reports. Past Independent Process Observer reports have requested clarification on the role of Health Canada's position in the Sudbury Soils Study.

The Health Canada representative attended many meetings and has stated that he viewed his role as an observer of the Technical Committee. At times he participated in discussions and even made suggestions pertaining to certain issues. Furthermore, he gave his assurance that all reports were being passed on to his superiors. The TC encouraged Health Canada to comment and respond to both the HHRA and ERA reports. No comments were ever received. I do not understand why officials at Health Canada have remained quiet. Suffice it to say that their role and behaviour in this study has been a mystery.

14. Where will the data from the Sudbury Soils Study be housed? Will it be accessible for future studies?

The answer to the last question is yes, it will be accessible for future studies.

The data will be housed at the new Living with Lakes Centre that is a part of Laurentian University. It is a fitting location for the data. This new centre epitomizes a holistic scientific approach to understanding the natural environment. Scientists who wish to use the data collected by the Sudbury Soils Study may access it for further studies.

15. Facilitator and technical support for the Technical Committee

I want to compliment Dick DeStefano, the facilitator, and Julie Sabourin for the support services provided at meetings for the past eight years. Dick was a very capable facilitator for the Technical Committee meetings and Julie kept all the minutes and agendas in an effective and timely manner. They maintained their impartiality throughout the study.

Final Observation

I have thought about my next comments for quite some time and wish to express them in a spirit of openness. I will try to articulate, to the best of my ability, the thoughts that I wish to convey.

Face-to-face engagement between Technical Committee members, scientists and the public was an essential element in creating public trust for the Sudbury Soils Study. There were opportunities for the public to engage in the soils study process during and after the findings were released but this didn't always happen.

I believe that members of the Technical Committee genuinely tried to produce the most accurate scientific risk management study possible. I also believe that critics of the Sudbury Soils Study have expressed concerns at the findings in a genuine and concerned way. I have no doubt that all of them have the best interests of this community in mind and care deeply for it.

I do have some concerns. What I have observed is that everyone on all sides at some point has used the language of **stereotyping**. For example, some critics of the soils study have said "the mining companies cannot be trusted" while I have heard some members of the Sudbury Soils Study say, "some critics of the soils study have an agenda to promote" implying that these concerns are less valid than others. Both of these statements as well as others lead to **labeling of people** which promote stereotyping that eventually acts as an excuse for exclusion, ultimately leaving people out of the process. Stereotyping by all sides ultimately fosters misinformation and leads to polarization. This is nothing short of an injustice to all Sudburians.

Some citizens are also misinformed about the process and the way the Sudbury Soils Study was carried out. Recently I was told that the Technical Committee made decisions by voting and that the mining companies had veto power. To make such erroneous and misleading statements after so many years into this study concerns me greatly. It demonstrates that these individuals understand little about the study and have not engaged in conversation with anyone from the study in order to have a clear understanding of the process. This approach helps no one!

Much of the criticism and its responses have taken place through the media, an environment that fosters a **one-upmanship** approach to spreading information rather than encouraging an open atmosphere of healthy dialogue for all concerned.

I have promoted and advocated face-to-face discussions with numerous people including the soils study scientists, Technical Committee members and public critics. I have urged all sides to participate in this kind of dialogue and have further recommended that they try to obtain answers to their concerns through this face-to-face discussion. To date no party has made serious approaches to talk with another regarding the results. Sudburians deserve better. There is still time for all sides to sit down together and to openly discuss concerns.

Analysis of My Role in This Study

My role as Independent Process Observer has always been an advisory role. I have provided suggestions through recommendations presented at Technical Committee meetings and through Independent Process Observer reports. Although the Technical Committee did not have to abide by my recommendations, in many cases they did listen to my suggestions and acted on many of my recommendations.

Ultimately my past reports and statements will help Sudburians to judge whether or not I was successful in this role. I have always been conscious of who I am representing when acting as the Independent Process Observer. Throughout the Sudbury Soils Study my perspective has always been based on the interests of Sudburians and the natural environment.

I have one regret. I recall a specific moment when I stepped out of line as an independent observer. At the Public Advisory Committee meeting of May 12, 2009 I questioned a member of the public on a comment made about the ERA. This person recommended that the SARA Group look at a scientific study that involved an animal that was not found here in Sudbury. I made the comment that that study was not pertinent to this area. **I was out of line!** Clearly it was not up to me as Independent Process Observer to make such a comment. I am sorry.

There have been times during this study when I have been criticized by both Technical Committee members and members of the public. At other times, I have been complimented by all sides for my comments.

From my position and from what I have observed, the Sudbury Soils Study was a new approach in engaging key partners in the Sudbury community. Although not a perfect process, it was innovative enough that all decisions had to be attained by consensus. At times this process took much discussion but in the end made for a clear understanding of where the study had come from and where it was heading.

The public was well represented on the Technical Committee by four public institutions. I attended almost all Technical Committee meetings as well as many other sub-committee meetings, public forums and open houses. My belief is that the consensus approach worked well.

In the entire eight years I have never observed any undue influence by any Technical Committee member over another. During that time the PAC members, union observers and I were privy to all information such as methodologies, data results and their implications. There was never discussion nor were there ever any attempts made to hold information from the public.

I have one final recommendation. When you ask yourself, if the Sudbury Soils Study actually worked, PLEASE, answer this only **after** you have allowed yourself sufficient time to read and understand how the study was undertaken and what results emerged.

I welcome questions and discussion about the Sudbury Soils Study process at anytime now or in the future.

Franco Mariotti
Independent Process Observer

SEE BELOW for Recommendations for Future Risk Assessments.

C) Recommendations for future Community Health Risk and Environmental Risk Assessments

Valuable lessons and perspectives are often learned from any project after the fact. With that in mind I make the following suggestions for any future Human Health Risk Assessment or Ecological Risk Assessment that may be undertaken by a community:

1. The Process: All Sectors Sitting at the Table

A decision-making body (analogous to the Technical Committee of the Sudbury Soils Study) should be created and represented by all the key players including the **companies involved** , the appropriate regulating government bodies, municipality representative and public observers.

2. Citizen Involvement and the Independent Process Observer

After eight years I do not believe that one person alone can do full justice to the independent process observer role. Perhaps many more eyes would make for improvements to this important role.

The Public Advisory Committee should have the added role of an Independent Process Observer. As well, the PAC's objectives would have to include attending or having PAC representation at all meetings and at all levels.

The public needs to be represented in any risk assessment. The question then becomes how do you achieve community representation when citizens of a community have varied and numerous opinions? I believe a group reflecting and representing a cross-section of the community would best emulate the interests of the community and at the same time act as

independent process observers. Based on the citizen science engagement models mentioned above in #2 under Final Comments on the Sudbury Soils Study, members of such a group would be selected out of a larger group that would apply through an advertisement in the community. This group would have some similarities to the existing Public Advisory Committee; however, the difference would be the long-term commitment to a community risk assessment.

Early on (shortly after the Public Advisory Committee would have been created) a series of participatory and lengthy workshop sessions should be provided. These workshops would immerse members in the technical details of the study topic. Scientists and specialists in the appropriate field would educate this citizens' committee on the broader topic of risk assessments and any other science that might be pertinent. A key objective of this committee would be to listen to the proceedings of the decision-making body. They, in essence, would be the ears and eyes of the community. This citizens' committee would not be directly involved in the process, but would provide suggestions and recommendations to the decision-making body.

All decision-making body meetings should be held in the evening to accommodate the availability of the citizen members. They would then be comfortable in all aspects of the study and report back to the community in a manner they deem responsible and fitting.

How then do we overcome the issue of long-term commitment by citizen members to a process that clearly requires attendance at regular monthly meetings that would probably last years? Long-term attendance is crucial. Loss of any member to such a committee reflects a valuable knowledge loss and it would take a long time to educate another member on the topic. The incentives to join and remain on this public committee need to be established early on to prevent premature resignations.

The community asks for and the process requires a major time commitment on the part of the members and they are expected to have the community's best interests in mind. Certainly a monetary compensation for their time is essential as well as reimbursement for transportation and meals.

Rules pertaining to membership, recruitment process and length of term should be drafted early on by members of the committee. The transition between new members and old ones should be done in a manner that does not impair the continuous role of the committee.

All of the Public Advisory Committee members act as observers and should arrive at decisions through consensus. The committee as a whole attends all major decision-making body meetings. However, individuals should also attend and be assigned to other committees or meetings that will undoubtedly arise from any large risk assessment project.

3. The Connection Between the Scientists Conducting the Study and the Decision-making Body

The relationship between the scientists conducting the scientific research for an assessment should have an arm's length approach to the members of the decision-making body who are paying for the study. In the Sudbury Soils Study, the International Peer Review Team's direct contact was through a Technical Committee member, the City of Greater Sudbury's representative on that committee. It is important that the scientists take their working orders from the whole of the decision-making body through the representative who is the most neutral and who reflects the public's interest first and foremost. This arm's length approach builds further credibility in the study process and adds to openness and fairness that ultimately strengthens public perception. It is also imperative that the scientists are not being directly influenced by any member(s) paying for the study

4. Hold a Visioning Session Early in the Study

Early on in the process and shortly after the decision-making body is created, a visioning session should take place to bring all members and observers together. Such a visioning session was held for the Sudbury Soils Study and proved very useful.

A visioning session (perhaps done in the form of a retreat) would bring together all participants and encourage a discussion of each participant's expectations. This will result in the creation of a shared vision for the study and a common understanding that can be articulated in the same language by each member of the study. There will be times in the process when decisions will be difficult to attain and having had a visioning session where participants shared a common understanding of how to achieve decisions, would be extremely helpful.

5. Financial Commitment by the Companies Involved

The question of who pays for a risk assessment is not normally an issue, but it eventually can become one. In the case of the Sudbury Soils Study, the two large mining companies, Vale INCO and Xstrata Nickel, paid for the study and this was never an issue. Early on, the expectation for the length of the Sudbury Soils Study was about three to four years with an estimated five to six million dollar price tag. The Sudbury Soils Study lasted eight years with a 15 million dollar cost.

After the fifth year, with no end in sight, the mining companies expressed concern regarding how much longer the process would take and how much additional monies would be needed. This was a valid concern. There were discussions about adding even more research projects and lengthening the whole study, again with no end in sight. The concept of a major human health risk assessment and/or environmental risk assessment with no definitive end date does not serve anyone.

To prevent money being used to stall or curtail an assessment after a projected time period has passed, I suggest the following;

a) In the beginning, have the decision-making body establish who is paying and then set the budget and timeline for the study.

b) Establish an additional one-year grace period beyond the initial projected date of completion during which the initial funders continue to fund the study.

c) If the study is not complete after the one-year grace period, then each member of the decision-making body (or equivalent) would contribute an equal monetary amount for future costs incurred. As a result, these financial burdens would be shared by all. Most importantly, this eliminates any influence or pressure by any one member due to financial concerns, and levels the playing field when making decisions.

6. Peer Review and Public Accessibility

The process by which the Sudbury Soils Study executed the scientific peer review was excellent and should be emulated by other assessments. *See details in point #10 under Final Comments*

One suggestion I would make in this part of the process is that the public should have an opportunity to meet directly with the scientific reviewers. This face-to-face meeting, done in an atmosphere of open- mindedness, would provide the public with neutral opinions about the risk assessment in their community.

7. Frequent Reporting to the Public by the Decision-making Body

The decision-making body would have a responsibility to frequently report back to the public on progress and new information. There are several ways that best engage the public on such issues. Frequent and regular public forums throughout the study are essential to engage and inform the public. Dates should be scheduled early in the process and carved in stone for the next two years. In essence, once these dates are set, they should not to be altered unless absolutely necessary.

Another important mechanism of maintaining contact with the public would be a newsletter that is published on a **frequent** basis (frequency determined by the decision-making body). The dates set for newsletter mailings should also be carved in stone and adhered to at all times.

These two key information dispersal points build credibility.

8. Frequent Reporting by the Public Advisory Committee

The Public Advisory Committee, having gone through a lengthy process of recruitment and education, is now charged to feed information streaming out of the study back to the public. All of their meetings should be held in a public forum. The frequency of these meetings should be similar to those of the decision-making body's meeting schedule. This is important because one of the Public Advisory Committee's key roles would be to act as a sounding board for decisions coming from the decision-making body. Proper advice and/or recommendations can only be given if the meeting schedules of each committee are similar.

From time to time the Public Advisory Committee may need to meet **in-camera**. These kinds of meetings were found to be very useful for PAC members in the Sudbury Soils Study for sharing their personal thoughts with each other. On occasion, members of the public advisory group may have frank discussions that will help clarify a particular position and through these discussions, provide additional support for each other.

One of the most important roles for this committee would be to make the public aware of advice they provided and recommendations they made to the decision-making body. A most useful way to achieve this is through a written record (similar to my quarterly Independent Process Observer Reports).

9. Remediation and Mitigation Plans should be a Part of any Assessment

Remediation and/or mitigation plans were not an official part of the Sudbury Soils Study and were never a part of the study's mandate. They were provided, however, by the two mining companies on their own volition. My recommendation is that a remediation plan should be the final and integral part of any risk assessment. These plans should directly reflect actions to be taken in response to the assessment results. Most importantly, such plans must allow for public comment and input so that the community becomes a part of the solution.