

The Sudbury Soils Study: A Commentary

BY

The Public Advisory Committee for the Study

June 2009

SUMMARY

The Sudbury Soils Study commenced in 2001 following recommendations by the Ontario Ministry of the Environment (MOE) that a more detailed soil study be undertaken to fill data gaps and both a human health risk assessment (HHRA) and ecological risk assessment (ERA) be undertaken. The recommendations came from the results of the 2001 MOE report that identified areas in Sudbury where some metal concentrations exceeded the generic Ontario soil quality guidelines. Vale Inco and Xstrata Nickel agreed to fund the study and a partnership was put in place to oversee the project. This partnership included the Ministry of the Environment (MOE), Vale Inco, the Sudbury & District Health Unit, Xstrata Nickel, the City of Greater Sudbury and the First Nations and Inuit Health Branch of Health Canada. Through an open bidding process the partnership contracted the Sudbury Area Risk Assessment (SARA) Group to execute the project with oversight provided by a Technical Committee (TC) formed by the partnership.

The Public Advisory Committee (PAC) was created in 2002 to provide a window to the study for the public. The PAC was also established to address the concerns of the community at large, by providing comments and input to the TC on deliberations surrounding the activities assessing the health and environmental impacts of metals in the Sudbury environment. From the Terms of Reference, study activities upon which the PAC might offer commentary included:

- sampling and reporting of community soil metal levels;
- development and implementation of community HHRA/ERA studies;
- initiation of any remedial works recommended by the conclusions of the HHRA/ERA studies; and
- all associated public communication and consultation activities.

The PAC was not responsible for the scientific or technical aspects of the study.

By the time the study concluded in late 2009, the PAC will have held 40 public meetings that allowed the public to hear technical presentations on the study, ask questions and make representations as desired. Meetings were held in several City Wards to allow greater access. These meetings resulted in numerous recommendations to the TC that were designed to enhance public awareness of the study and provide for greater transparency of the process. Some technical recommendations were also made to the TC by members of the PAC. The PAC's work was complementary to that of an Independent Process Observer who was appointed to ensure transparency of the process and that the interests of the public in the study area were served.

The main findings reached by PAC on the Sudbury Soils Study are listed below:

- The MOE created the mandate for the project. MOE has clearly stated that this mandate has been met. PAC observed that all study principals, both scientific advisors and both independent expert review panels agreed that the study has been completed to meet the mandate of the project.
- It was encouraging that several different stakeholders came together to produce an excellent study and a model process for future studies. While it seems likely that not every stakeholder's interests were fully met, a sufficient and meaningful study did emerge through consensus to the benefit of all citizens of the study area. Collectively, stakeholders were motivated to ensure that the study correctly assessed the risk to human health and to the ecology of the study area.
- PAC believes that the science carried out by the SARA Group for the Sudbury Soils Study was exceptional and that the use of independent scientific advisors served to strengthen the scientific rigour of the study.
- The opinion of the PAC is that the use of independent expert review panels for both risk assessments provided additional quality control and transparency.
- The Independent Process Observer completed his task in an exceptional manner that served to strengthen the validity and transparency of the process.
- Opportunities for public involvement were numerous and varied, but not always well-attended. Comments and questions from members of the public helped to improve many aspects of the study.
- The PAC kept its focus on the underlying objective of the committee, which was to assist the TC, SARA Group and the public in understanding the issues with the goal of producing a scientifically sound study that respected the needs of all concerned and rigorously addressed the scientific and regulatory issues.
- Finally PAC believes it has been a beneficial asset to the study and that the public has been well served by volunteer members of the PAC.

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The Public Advisory Committee (PAC) of the Sudbury Soils Study would like to thank the members of the public for attending PAC meetings and other public sessions, and for contributing to the discussion. The PAC thanks the citizens of the study area who served on this voluntary committee. We appreciate the time and effort put forth by the Technical Committee, the SARA Group and other experts including the scientific advisors and the Independent Expert Review Panels. The PAC appreciates the support and advice of Franco Mariotti, Independent Process Observer. We thank Julie Sabourin for her administrative support.

NOTE

This document reports on the activities and the findings of the Public Advisory Committee (PAC) over the duration of the Sudbury Soils Study. A draft version of this document was circulated to the Independent Process Observer, Technical Committee and to the SARA Group to assist with factual accuracy. The final version of this report was formally endorsed by the PAC in June 2009 and represents the opinions of the PAC.

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INTRODUCTION

This report provides commentary on the function and responsibilities of the Public Advisory Committee (PAC) for the Sudbury Soils Study (SSS) and related processes. It also describes the successes and challenges of the process and provide insights into how a similar process could be improved. Much of the descriptive information was taken directly from the Study's website (www.sudburysoilsstudy.com) or from published reports found in the City of Greater Sudbury's Public Libraries.

BACKGROUND

The Sudbury Soils Study

In 2001, the Ontario Ministry of the Environment (MOE) released a report which identified that concentrations of nickel, cobalt, copper or arsenic exceeded the generic MOE soil quality guidelines at some sites. Under Ontario legislation, this triggered the need for more detailed study. Therefore, the MOE made two recommendations:

1. That a more detailed soil study be undertaken to fill data gaps, and
2. That human health and ecological risk assessments be undertaken.

Both Inco Ltd. (now Vale Inco Ltd.) and Falconbridge Ltd. (now Xstrata Nickel Ltd.) voluntarily accepted the recommendations and began working together to establish what came to be known as "The Sudbury Soils Study".

The mining companies partnered with four other major stakeholders in Sudbury to oversee this comprehensive study. The community partners were Vale Inco, Xstrata Nickel, the Ministry of the Environment, the Sudbury & District Health Unit, the City of Greater Sudbury, and Health Canada First Nations and Inuit Health Branch. These partners formed a Technical Committee to oversee the study. A Public Advisory Committee was also established to help voice questions and concerns that the public might have about the potential impact of elevated metal levels on the local environment and on human health. As people who live and work in the study area, PAC members and TC members shared many of the questions and concerns of their fellow citizens.

A comprehensive soil sampling and analysis program was undertaken in 2001 by the MOE and mining companies. Approximately 8,500 soil samples were collected from urban and remote areas and analyzed for 20 elements. These data formed the basis for the study.

Early in 2003, a consortium of consulting firms working together as the SARA (Sudbury Area Risk Assessment) Group was retained to undertake the risk assessment portion of the study. The main partners of the SARA Group in 2003 were C. Wren & Associates Inc., Cantox

Environmental Inc., RWDI, SGS Lakefield and Goss Gilroy Inc. By spring 2009 the total funds expended on the project by Vale Inco and Xstrata Nickel were approximately \$15 million.

THE PUBLIC ADVISORY COMMITTEE

Created in January, 2002, the Public Advisory Committee had the responsibility of representing citizens' interests in the Sudbury Soils Study (see Terms of Reference in Appendices A and B or on the website). In the beginning, the PAC met four times a year, but this was soon increased to six times per year to meet the workload and public demand. PAC members worked with the Technical Committee to provide input on the process to reflect the needs and concerns of the public. As representatives of the community, they had the additional role of helping to assure that the study was an open, transparent process and to provide a sounding board for the Technical Committee and SARA on matters of public communication and citizen concerns.

There were up to twelve citizen members on the PAC, including two First Nations representatives as well as the Process Observer and Administrative Support. Initially PAC members were selected by the Technical Committee through response to an advertisement placed in the local newspaper. This evolved into a process whereby applicants were screened by a joint PAC and Technical Committee sub-committee and selected candidates were approved by the PAC membership. The First Nations communities (Whitefish Lake First Nation, now known as Atikameksheng Anisknawbek, and Wahnapiatae First Nation) selected their own representatives and decided upon their level of involvement in the study. The PAC was fully responsible for all other membership renewals or dismissals.

Terms of Reference

The original Terms of Reference are provided in Appendix A: these required annual review and the 2008 version is provided in Appendix B. The following text is the statement of purpose for the PAC as per the September 16, 2008 Terms of Reference:

Role & Responsibilities

The PAC was established to address the concerns of the community at large, by providing comments and input to the Technical Committee on deliberations surrounding the activities assessing the health and environmental impacts of metals in the Sudbury environment. Study activities upon which the PAC might offer commentary included:

- a) sampling and reporting of community soil metal levels;
- b) development and implementation of community HHRA/ERA studies;
- c) initiation of any remedial works recommended by the conclusions of the HHRA/ERA studies; and
- d) all associated public communication and consultation activities

The PAC was not responsible for the scientific or technical review of the study.

The PAC has completed these tasks and some of the points, issues and recommendations raised by PAC during the project are described below:

Notable Recommendations on Process

- Ensure an open bidding process for the scientific study.
- Make certain that the study was conducted by an independent and experienced agency.
- Ensure an open bidding process for the scientific review (peer review).
- Make sure that the scientific review is conducted by an independent and experienced agency.
- Clarify the role and responsibilities of scientific advisors including the method by which advisors may communicate with TC members and vice-versa.
- Explain the regulatory role/responsibilities of the Ontario Ministry of the Environment, its role/responsibilities on the TC and specify which role/responsibility takes priority and under which conditions.
- Clarify the nature and extent of the involvement of the First Nations and Inuit Health Branch in the study and on the TC in particular.

Notable Recommendations on Methods Relevant to Public Perception of the Process

- Careful consideration of the pros and cons is needed during technical discussions as to whether indoor air and dust should be measured in study area homes or whether values from the literature could be used in the risk assessment model. In the PAC's view, the public might be more appreciative of a study that used data specific to the study area.
- The public might be better served if measurements can be made of the different types of nickel compounds (speciation studies); given that health risks may be higher with some nickel compounds than with others.
- Ensure that sampling was adequate and scientifically defensible.

Notable Recommendations on Communications

- Suggestions on how to improve content and functionality of website.
- Conduct a telephone survey to assess awareness and knowledge of the study and to identify major news sources for people living in the study area.
- Rotate PAC meetings among City Wards to allow for greater public awareness and participation.
- Provide more opportunities for public presentations or questions at TC meetings.
- Balance public's right to know with the need for unconstrained scientific discussion during independent review.
- Community information sessions on HHRA results should be held in Falconbridge and Copper Cliff as well as Sudbury.
- Clarify how risk management (if necessary) will flow from risk assessment.

- Study data should be available to the public and other researchers, with appropriate safeguards to protect confidentiality of property owners and residents of the study area.
- Translate key documents into French.
- Ensure clear and frequent communication of the objectives of risk assessment.
- Provide real opportunities for the public to comment on the results and findings before the reports are made final.

Additional recommendations and findings are presented in a series of annual reports produced by the PAC and housed on the study website (www.sudburysoilsstudy.com).

Public Interaction

Over seven years the PAC has held 40 public meetings for the purpose of providing the public with information, providing a forum for making presentations or asking questions and in general terms, providing the public with a window into the entire process. Meetings were held in various venues throughout the study area in an attempt to get greater local community involvement. Meetings were advertised in local print media and on the Study's website. Initial PAC meetings were well attended by the public. However, public attendance decreased over the duration of the study. A number of factors could account for this trend, including lack of interest, fatigue, acceptance of the study process, a wait-and-see approach, etc. Other opportunities for public interaction were made available in many situations with various levels of public participation, for example, "Have Your Say" workshops and Earth Day Booth.

The PAC held its first meeting on February 25, 2002. Since that date, 26 citizens have served on the committee (Table 1). These volunteers lived in the study area and brought a diversity of backgrounds and perspectives that contributed to the success of the PAC and helped with the study process.

PAC members attended 64 TC meetings, over a dozen community information sessions or "Have Your Say" workshops, more than 40 meetings of the Communications Sub-committee and 15 technical workshops.

Table 1 - Members of the Public Advisory Committee 2002-2009

Name	From	To
Ersin Abdullah	Mar. 16/04	End of study
Darrel Alston (WFN)	Feb. 18/03	End of study
Norris Artuso	Feb. 25/02	Nov. 19/02
Nicole Breau	Apr. 14/05	End of study
Adam Cecchetto	Mar. 27/07	End of study
Irma Chiesa	June 22/04	Mar. 10/05
Joe Cimino	Feb. 25/02	May 17/05
Dick Cowan	Apr. 14/05	End of study
Kim Edgington	June 22/04	Mar. 10/05
Ivan Fillion (<i>former Chair</i>)	Feb. 25/02	June 22/04
Ronda Gougeon	Nov. 19/02	Sep. 16/03
John Hogenbirk (<i>Chair</i>)	Feb. 25/02	End of study
Gary Hrytsak (<i>Vice-chair</i>)	Feb. 25/02	End of study
Nancy Keller	Feb. 25/02	June 18/03
Aino Laamanen	Sep. 17/02	End of study
Dino Maserio	Nov. 19/02	Mar. 16/04
Larry McGregor (WFN)	Feb. 25/02	Feb. 18/03
Lesley Nebenionquit (WLFN)	May 18/04	(substitute)
Rubina Nebenionquit (WLFN)	Feb. 25/02	Jan. 16/07
Steve Reitzel	Feb 25/02	July 16/02
Paul St. Jean	Sep. 17/02	Sep. 21/04
Jennifer Santarre	Feb. 25/02	Apr. 25/03
Bob Somek	Mar. 16/04	Nov.25/08
Paula Takats	Mar. 27/07	End of study
Carmen Wabagejik (WLFN)	Nov. 18/03	(substitute)
Carol Zippel	Mar. 16/04	End of study

WFN = Wahnapiatae First Nation, WLFN = Whitefish Lake First Nation

THE TECHNICAL COMMITTEE

The following information is provided on the Technical Committee (TC) so that readers may better understand the working relationship between it and the PAC. Additional information can be found on the study website and in the documents held at public libraries in the City of Greater Sudbury.

Six organizations, identified as major stakeholders in the maintenance of a healthy environment in Sudbury, were given the responsibility to oversee this comprehensive soil study (see TC Terms of Reference on website). Members of the TC included the Sudbury & District Health Unit, Ontario Ministry of the Environment, City of Greater Sudbury, Vale Inco, Xstrata Nickel, and First Nations and Inuit Health Branch of Health Canada.

As the study's Technical Committee, their role was to provide overall management of the process, provide scientific direction to the study, and select and manage qualified consultants to develop comprehensive risk assessments to protect human and ecological health.

Typical TC meetings were attended by one or more representatives from the project partners, one or more representatives from the SARA Group (the Contractor), the Independent Process Observer (non-voting), the Chair of PAC (non voting) and observers (non-voting) from the two major mining related unions in Sudbury (Steelworkers 6500 and CAW 598 – Mine-Mill) as well as any PAC Member who wished to attend. Union representatives joined the TC as observers in February 2004 (TC meeting #29). Meetings were chaired by a hired facilitator. After encouragement by PAC and the IPO each formal TC meeting provided an opportunity for the public to make presentations: unfortunately, this opportunity was seldom exercised by members of the public. A sub-group of the Technical Committee (the Working Group) was formed to deal with administrative issues.

The first hour of each Technical Committee meeting was open to the public beginning in March 2004 (TC meeting #30). The remainder of each session was closed to the public, with the exception of the IPO, PAC and Union observers. The nature and complexity of the science frequently required small working meetings of specialists to resolve scientific issues that represented differences in scientific opinion or expertise. The role of government regulations in affecting the results cannot be ignored—government regulations exist at the boundary of science and politics and are influenced by both. The validity of existing regulations was also the subject of scientific debate among the stakeholders. In these circumstances it can be argued that there was a need for unconstrained confidential discussion on the science and policy among the scientific and technical experts. The understanding was that while the discussions were off-the-record, the results of these discussions would be shared with the public through Key Progress and Decision Summaries produced for each TC meeting and in the HHRA and ERA technical reports.

It is also important to recognize that the sciences of toxicology and risk assessment are complex and leading edge and that there is not always a single perfect answer. Consequently the

“weight of evidence” approach was used by the Project Contractor (SARA Group) to attain conclusions. This approach was supported by Dr. Stella Swanson (Independent Science Advisor to the ERA) who stated that “the use of several lines of evidence assembled into an overall weight of evidence is the current ‘state of the science’ for ecological risk assessment.” Similar conclusions were voiced by members of both Independent Expert Review Panels in regards to the HHRA and ERA (www.tera.org).

In general, the TC worked well together. At times, it seemed that decisions had to wait while information was sent by TC representatives to their company or agency manager or science expert who made the actual decision. The result of the decision then made its way back to the TC, sometimes with considerable delay. In the end, the SARA Group (the Contractor) was responsible for the work, conducted under the guidance of the TC. The SARA Group was also responsible for the project reports, after giving due consideration to feedback from the TC and from the scientific advisors.

As the project evolved and the amount of information and results presented to the public increased, the TC struck a Communications Sub Committee (CSC) to deal with public events, releases, questions and answers, etc. The CSC consisted of communications and technical experts from each of the partners, SARA Group representatives, a PAC observer and the Independent Process Observer. The PAC had to argue for observer status on CSC, which was granted in June 2005. The PAC, IPO and others worked to ensure that the interests and concerns of the public were represented fairly and honestly and that the communications were meaningful and reasonable. For the most part the PAC believed that this was accomplished and that the public received a fair-minded representation of the process and results of the Sudbury Soil Study.

It should be noted that all partners had financial interests in the nature and extent of the risks identified by the study. The potential for liability existed if the risks were underestimated as well as if the risks were overestimated. As well, the reputation and livelihood of the SARA Group scientists, Scientific Advisors and members of the Independent Expert Review Panels would also suffer should the science be less than “state-of-the-art.” All things considered, there was great incentive for all participants to obtain the most accurate risk estimate possible. The PAC believes that these realities and the presence of the PAC, IPO and members of the public helped to ensure a scientifically defensible study through a process of consensus building.

THE SCIENCE

The science for the SSS was executed by the SARA Group, a consortium of specialists, contracted through an open, competitive bidding process. The PAC and IPO had argued for and supported an open bidding process. The SARA Group reported to and received direction from the TC and their contract was administered by Vale Inco Ltd. PAC believes that the SARA Group was well qualified to carry out this project and PAC has been satisfied by the openness and

willingness of SARA Group to convey information and participate in PAC meetings and other public events.

Early in the risk assessment process two independent scientific advisers were contracted to provide third party insight into the work program and science methodologies proposed by SARA: Dr. Ron Brecher for the HHRA and Dr. Stella Swanson for the ERA. In the PAC's view, this was an excellent step in providing additional expertise and quality control to the TC, SARA Group and the public.

As a further quality control measure for the project, the TC contracted an Independent Expert Review Panel agency to provide for a third-party peer review of the draft HHRA and ERA reports. The PAC lent its weight to the arguments for a third-party independent peer review. Through an open, competitive bidding process in which two PAC members were involved, TERA (Toxicology Excellence for Risk Assessment: www.tera.org) was awarded the contract. TERA representatives came to Sudbury to present to the public on the principles and process that they used to ensure an independent and expert review. TERA also organized two public information sessions in Sudbury the evening before the peer review meetings. These peer-review meetings were, with the exception of PAC members, IPO and Union observers, closed to the public to facilitate unconstrained scientific debate. The results of these sessions were made available to the public through TERA's website upon release of the HHRA and ERA technical reports. From PAC's perspective, the use of external, qualified, peer review teams were a brilliant step in providing assurance that the science and methodology was "state-of-the-art". It is not clear, however, that all members of the public had full appreciation of the importance of this international peer review procedure. In retrospect it would have been beneficial for the public to have had further interaction with both groups of peer review experts.

In summary, the PAC was satisfied that the Study's scientific component was carried out by a well qualified contractor and that excellent quality control and peer review processes were followed.

THE INDEPENDENT PROCESS OBSERVER

As a further step to the formation of PAC, to ensure that the interests of the Sudbury community were served throughout the development of the HHRA and ERA, the stakeholders retained an Independent Process Observer (IPO). The purpose of the IPO was to oversee and report on the process used to conduct the HHRA and ERA to ensure that it was transparent to the community and that communication with the public was timely and effective.

Created in January, 2002, the position of Independent Process Observer was always non-voting and independent of any committee. The Observer was Mr. Franco Mariotti, a Staff Scientist at Science North with impeccable relevant qualifications. His task was to regularly review the study process, report to the public on a regular basis, and at all times represent the interests of

both the general public and the environment. His views and comments as the Observer were of a personal nature and did not represent those of his employer.

The IPO sat as a non-voting member of the PAC and the TC. As an impartial observer, he advised on matters related to the transparency and process of the Human Health Risk Assessment and the Ecological Risk Assessment, as managed by the TC. He also provided advice on the role and performance of the PAC.

The Independent Process Observer tasks (from the IPO's Terms of Reference) were to:

- Act as an impartial observer and recorder of the process.
- Be independent of any bureaucracy.
- Maintain the right to review information and files such as minutes of meetings, terms of reference, proposals, draft reports, and final reports pertaining to the HHRA or ERA process.
- Act as an observer and where necessary as a facilitator to ensure that proper practice is followed by the TC and PAC.
- Receive comment, input or complaints from the public on matters relating to process and respond appropriately.
- Point out and suggest remedies for inconsistencies in procedures in consultation with committee members.
- Recommend process improvements to the TC and PAC to ensure effective and timely completion of work assignments, investigations, studies and reporting.
- Suggest opportunities to improve the process for a more effective outcome for all parties.
- Prepare a quarterly written report on the overall progress and direction of the work of the committees for dissemination to the public.
- Encourage teamwork through consultation and communication.

At the time of writing this report the IPO had published 22 reports on his role, activities and observations about the process. In the opinion of PAC, the IPO has performed brilliantly and the PAC acknowledges and applauds the successful execution of his tasks. Members of the TC are also to be applauded for creating the IPO and the PAC as independent observers and advisors on transparency and the communications process. In addition, the TC deserves credit for their serious consideration of, and often, the adoption of other initiatives designed to improve transparency and maintain the public's trust in the scientific study.

THE PAC REPORT CARD

Following are some comments on the successful and less successful aspects of the process from the PAC's perspective

Successful Aspects

- The role of the PAC was to serve a conduit for communications between the public and study proponents and vice versa. The PAC was not the author of these communications nor was the PAC responsible for the scientific or technical direction of the study. After some initial growing pains, the PAC settled into this role.
- The PAC achieved greater responsibility for its membership selection and was fully responsible for re-appointment and/or dismissal.
- The PAC had access to the independent scientific advisors and the peer review teams as well as full access to the contractor and members of the TC. Information was provided when requested.
- Observer status on the TC and CSC was very important for information accrual.
- Although composed of individuals having differing ethnic, occupational and educational backgrounds, the PAC worked well as a team and everyone was able to speak freely.
- Most PAC members persevered through many years of the project and maintained a high level of involvement as volunteers.
- The PAC successfully worked to earn the trust of the TC, CSC and SARA Group—particularly with respect to the sharing of confidential documents in advance of public publication or presentation. It is possible that this barrier may have been lowered had members of the PAC signed confidentiality documents. However, the potential ramifications for transparency were huge had the PAC signed non disclosure or confidentiality agreements. Without these agreements, it took some time to earn the level of trust that the PAC needed to do its job. It took constant effort to maintain and remind the TC, CSC and SARA Group of this high level of trust by volunteers who were not affiliated with any of the TC member companies or agencies, SARA Group or other consultants.

Less Successful Aspects

- The lack of active participation by the First Nations and Inuit Health Branch (FNIHB) on the Technical Committee was unfortunate. If membership on the TC was deemed valuable at the beginning, then the FNIHB should have participated fully or withdrawn. As such, the PAC was unable to tell if the First Nations communities were well represented by this agency.
- A representative from Wahnapiitae First Nation attended PAC meetings early in the process. Although representation was maintained throughout the study, the low level of participation in later years meant that the PAC, TC, CSC and the SARA Group were not always aware of this First Nation's interests or concerns. It is important to note that the

PAC understood that Wahnapiatae First Nation had the right to choose their level of participation.

- Participation on the PAC by the Whitefish First Nation was very strong until the initial representative moved and was not replaced—this was unfortunate. Again, the PAC understood that the Whitefish Lake First Nation would determine their level of involvement.
- While the scientific advisors gave one session each on HHRA and ERA methods, the PAC should have pushed for greater utilization of the independent scientific advisors for informing both its members and the public on risk assessment.
- Professional communicators came in to play when key results were to be announced. This reduced the ability of PAC to participate meaningfully in those instances when the PAC was not given sufficient time to review public communications. It should be noted, however, that the PAC was not responsible for the content of any communication (with the exception of PAC documents, such as this report). However, it does bear on the effectiveness of the PAC when opportunities for meaningful review were reduced due to expediency.
- Though the public was provided with opportunity to appear before both PAC and TC this opportunity was greatly underutilized. One individual and associates made several representations. Though well meaning, this representation was essentially a lobby for a different study than that which the MOE had required. Unfortunately, some of the media decided that this story was more important than the actual study. In this regard, PAC believes that the media has occasionally let the people of Sudbury down by focusing on some dissention rather than on the total effort.
- PAC meetings were held in several City Wards, a telephone survey was conducted and there were numerous other information sharing events such as “Have Your Say Workshops” and Community Information sessions as well as various other activities, such as newsletters, IPO reports, website and so forth. These activities had varying degrees of public involvement and it was not always clear that all members of the public were adequately represented. Additional random surveys may have helped to assess whether this involvement was representative of the general public. When all is said and done, it may not be realistic to have expected the public to maintain a high level of interest throughout a highly technical study, particularly towards the later phase when data was being analyzed and preliminary findings were being discussed out of the view of the public.
- There is a perception among some PAC members that the decision makers for the TC stakeholders were not always at TC meetings. This may have caused delay and misunderstanding in cases where some TC members were prepared to come to a decision while other TC members needed to consult with either their superiors or technical experts.
- PAC members found that adversarial stances adopted by some parties and some citizens were not helpful to the process and were a disservice to the public.

Recommendations

- Engaging the public is difficult and this task should not be underestimated. This was a particular challenge because of the length of the science program and the long wait for results. Continuous attempts to engage the public are required, particularly when there are unplanned periods of delay. One suggestion for future studies would be to focus greater effort on primary and secondary school students and teachers.
- All efforts must be made to achieve and maintain transparency.
- The knowledge, interests and concerns of the public should be monitored in a systematic way, perhaps through random surveys. The public-initiated response system used to obtain input and feedback—a system common to other assessments and similar studies—may not capture a representative sample of public opinion.
- The non-confidential components of the technical database must be made available for use by other scientists. These data are essential to providing a baseline against which existing risk assessments can be evaluated and future risk management activities may be measured.
- The rights and responsibilities of observers must be clearly defined. If an observer has an issue with the process, then he or she must be provided with a route to resolve the issue. This may be done by either providing an opportunity to speak at some stage of a meeting or through written submissions to the chair.
- The Chair and Vice-Chair of committees such as PAC should rotate every two years, with some provision for continuity. Though the PAC Executive performed well, it may be too much to ask a few volunteers to take on such a task for seven or more years.
- It is difficult to get volunteers to spend several years on a project. Although there may be a perceived conflict of interest, the possibility of paying stipends to members should be considered for future committees of this nature. Many government committees pay stipends to public members. At the very least, members should be adequately reimbursed for legitimate expenses related to official events.
- Similar committees should keep focused on the real objective of their committee. In the PAC's case, the underlying objective was to assist the study principals and the public in understanding the issues with the goal of producing a scientifically sound study that respected the needs of all concerned and rigorously addressed the scientific and regulatory issues.

CONCLUSIONS

- The MOE created the mandate for the project and the MOE has clearly stated that this mandate has been met. The fact that other parties would have preferred a different or expanded mandate is not relevant. If another study is required to meet different objectives, then there is nothing to prevent future study.
- It was encouraging that several different stakeholders could come together to produce an excellent study and a model process for future studies. While it seems likely that not

every stakeholder's interests were fully met, a sufficient and meaningful study did emerge through consensus to the benefit of all citizens of the study area.

- PAC believes that the science carried out by SARA for the Sudbury Soils Study was exceptional and that the use of independent expert review teams provided additional quality control and transparency.
- The scientific advisors to the stakeholders contributed much informed debate to the study and served to reinforce rigour and improve understanding of the science.
- The Independent Process Observer completed his task in an exceptional manner that served to strengthen the validity and transparency of the process.
- It is clear that greater involvement by the public would have helped to ensure that a more representative sample of public opinion was considered throughout the study.
- Finally, the PAC believes it has been a beneficial asset to the study and that the public has been well served by its volunteer members.

APPENDICES

Appendix A: Original PAC Terms of Reference

**Metals in the Sudbury Environment
Public Advisory Committee - Terms of Reference
February 11, 2002**

1.0 Background

The Ministry of the Environment (MOE) summary report on metals in soil and vegetation in the Sudbury area identified that further soil investigations and assessments were necessary. As a result, the MOE, Inco Ltd. and Falconbridge Ltd. have cooperatively undertaken a sampling program for the Sudbury area that will refine the existing database. In addition, this database will be used as part of the information necessary to conduct a Human Health Risk Assessment (HHRA), and an Ecological Risk Assessment (ERA). The MOE, Inco, Falconbridge, the Sudbury & District Board of Health and the City of Greater Sudbury (CGS) established a Soils Public Liaison Committee (PLC) as a form of public consultation with the local community prior to and during these studies.

At the October 30, 2001 PLC meeting it was agreed that the two goals of the PLC were to discuss and advise on technical issues, and to provide a forum for public consultation. It was felt that this process would be best served by two separate committees. A Technical Committee (TC) was established for Inco and Falconbridge and the government stakeholders and a separate Public Advisory Committee (PAC), as a complimentary initiative of Earthcare Sudbury, was established to address the concerns of the community at large.

2.0 Purpose

- 2.1** The PAC has been established to advise, by providing comments and input to the Technical Committee on deliberations surrounding the activities assessing the health and environmental impacts of metals in the Sudbury environment including:
- a) the sampling and reporting of community soil metal levels;
 - b) the development and implementation of community HHRA/ERA studies;
 - c) the initiation of any remedial works recommended by the conclusions of the HHRA/ERA studies;
 - d) all associated public communication and consultation activities.

2.2 The PAC will be maintained as long as required by the activities of the TC.

3.0 Membership

- 3.1**
- a) Committee members from the area of City of Greater Sudbury (CGS) shall be selected by the TC from applications received in response to a newspaper advertisement.
 - b) Committee members from the Whitefish Lake and Wahnapiatae First Nations shall be determined by the Band Councils from those communities.

- 3.2** The composition of the committee shall be seven to nine members who live in the City of Greater Sudbury community at large, including one member to represent each of the Whitefish Lake and Wahnapiatae First Nations communities. All members shall be voting members. A recording secretary shall be provided by Inco and Falconbridge. The position of recording secretary shall be a non-voting position.
- 3.3** Membership term shall be for two years. Members may be reappointed. Interested persons may make application for membership through the TC. Resignations are to be provided in writing to the TC through the PAC Chair.
- 3.4** Any member who misses three consecutive meetings without notification may be replaced. Absentee members must first be notified in writing by the Chair. A quorum of the committee will review the response from the absentee member and vote on replacing the member.

4.0 Officers

- 4.1** The Chair of the initial meetings of the PAC will be the original Chair of the PLC. The PAC shall have the option to elect a Chair from amongst its members at the first meeting of each new calendar year, or if the position becomes vacant.

The Chair will plan meeting agendas, preside over the meetings, and coordinate activities of the PAC. The Chair will also be voting member.

- 4.2** The Committee shall also elect a Vice-Chair from amongst its members at the first meeting of each new calendar year, or if the position becomes vacant. The Vice-Chair shall act as Chair in the absence of the Chair.

5.0 Meeting Procedures

- 5.1** The Committee shall meet quarterly at a minimum, and otherwise at the discretion of the Chair. The Committee will ensure the date, time and place of all meetings are advertised for the information of the public.
- 5.2** All committee meetings shall be open to the public; however, those seeking an opportunity to address the PAC must make a specific request to the Chair seven days prior to the meeting.
- 5.3** Quorum shall consist of fifty percent of the voting membership, plus one.
- 5.4** Decisions are to be made by consensus first and if consensus cannot be achieved, by majority vote. Voting can only be by PAC members.
- 5.5** In the absence of a quorum, meetings may be held and motions may be put forward and seconded for the record. However, all motions must be fully discussed and voted on by a quorum of the committee at a subsequent meeting in order to be accepted as official and acted on by the committee.

- 5.6 All agendas, minutes and letters from the committee, and all public communications on behalf of the committee, must be approved by the committee.
- 5.7 All documentation produced by the committee shall be made accessible to the public.
- 5.6 An annual report shall be prepared to document PAC activities, which shall be shared with Earthcare Sudbury.

Minutes and Secretariat

All administrative services associated with this committee will be the responsibility of Inco and Falconbridge. Minutes will be distributed electronically. All minutes will be forwarded to the Technical Committee and the Process Observer.

Appendix B: Final PAC Terms of Reference

Sudbury Soils Study Public Advisory Committee - Terms of Reference

R: October 14, 2004

R: January 17, 2006

R: January 16, 2007

R: September 16, 2008

1.0 Background

The Ministry of the Environment (MOE) summary report¹ on metals in soil and vegetation in the Sudbury area identified that further soil investigations and assessments were necessary. As a result, the MOE, Vale Inco (formerly CVRD Inco and Inco Ltd) and Xstrata Nickel (formerly Falconbridge Ltd) have cooperatively undertaken a sampling program for the Sudbury area that will refine the existing database. In addition, this database will be used as part of the information necessary to conduct a Human Health Risk Assessment (HHRA), and an Ecological Risk Assessment (ERA). The MOE, Vale Inco, Xstrata Nickel, the Sudbury & District Health Unit and the City of Greater Sudbury established a Soils Public Liaison Committee (PLC) as a form of public consultation with the local community prior to and during these studies.

At the October 30, 2001 PLC meeting it was agreed that the two goals of the PLC were to discuss and advise on technical issues, and to provide a forum for public consultation. It was felt that this process would be best served by two separate committees. The PLC evolved into the Technical Committee (TC) that includes the Sudbury & District Health Unit, Ontario Ministry of Environment, City of Greater Sudbury, Vale Inco, Xstrata Nickel and First Nations and Inuit Health Branch of Health Canada. A separate Public Advisory Committee (PAC) was established to address the concerns of the community at large.

2.0 Purpose

- 2.1 The PAC has been established to address the concerns of the community at large, by providing comments and input to the Technical Committee on deliberations surrounding the activities assessing the health and environmental impacts of metals in the Sudbury environment. Study activities upon which the PAC might offer commentary would include:
- a) the sampling and reporting of community soil metal levels;
 - b) the development and implementation of community HHRA/ERA studies;
 - c) the initiation of any remedial works recommended by the conclusions of the HHRA/ERA studies;

¹ Metals in Soil and Vegetation in the Sudbury Area (Survey 2000 and Additional Historic Data) September 2001, Ministry of the Environment

- d) all associated public communication and consultation activities.
- 2.2 The PAC will be maintained as long as required by the activities of the TC or at a minimum until such time as the Human Health Risk Assessment and Ecological Risk Assessment are completed and distributed to the public.
- 2.3 The PAC is not responsible for the scientific or technical review of the study. The PAC may, however, offer its comment and input to the TC on these matters. The PAC reserves the right to ask the TC to provide the PAC with access to advisors who have the necessary expertise to comment on scientific or technical issues.
- 2.4 In addition, the PAC will provide opportunities for members of the public to express their concerns or to ask questions about any aspect of the Sudbury Soils Study, such as questions related to scientific or technical matters or to process or procedural issues.

3.0 Membership

- 3.1 a) Committee members from the study area (which includes the City of Greater Sudbury and those adjacent areas that lie within the study boundary) shall be selected by a joint committee of the PAC and the TC. Applications shall be solicited through newspaper advertisements. The joint committee shall consist of two (2) members of the TC's Working Group and two (2) members of the PAC (typically the PAC Chair and Vice-Chair or their designates). The joint committee shall review the applications and circulate the names of all applicants to the PAC for feedback. The list shall note those applicants who have been selected for interview and shall include their resumes. After the interviews, the joint committee shall circulate to the PAC a list of the individuals who have been nominated for PAC membership. The list of nominees will be circulated to the PAC at least one (1) week in advance of the next PAC meeting. A quorum of the PAC shall reach consensus as to whether or not to accept the nominations.

b) Committee members from the Whitefish Lake and Wahnapiatae First Nations shall be determined by the Band Councils from those communities.
- 3.2 The composition of the committee shall be a maximum of twelve (12) members who live in the study area, including one member to represent each of the Whitefish Lake and Wahnapiatae First Nations communities. Members of the PAC are to be representative of the community at large. A recording secretary shall be provided by Vale Inco and Xstrata Nickel. The recording secretary is not a member of the PAC.
- 3.3 Membership shall be for two (2) years and members may be reappointed. Members shall be notified by the recording secretary that their current term has expired. Members seeking reappointment shall apply in writing to the PAC Chair within sixty (60) days of being notified by the recording secretary. Within thirty (30) days of receipt of the letter, the Chair shall call a meeting of the Committee of the Whole to discuss the application. The member seeking reappointment shall not be present during these discussions. A quorum of the PAC Committee of the Whole shall reach consensus (see section 5.4) as to whether or not to accept the re-application. Members who have

reached the end of their term and have been duly notified and do not reapply within sixty (60) days will be deemed to have ended their participation in the PAC.

- 3.4 Any member who misses three consecutive meetings may be replaced. Absentee members must first be notified in writing by the Chair. Based on communications with the absentee member, the Chair may choose to call a meeting of the Committee of the Whole to review the circumstances of the absentee member. The member in question shall not be present during these discussions. A quorum of the Committee of the Whole shall come to a consensus as to whether or not the member should be replaced. As asserted in section 3.1b, members from the Whitefish Lake and Wahnapiitae First Nations shall be determined by the Band Councils from those communities
- 3.5 Resignations are to be provided in writing to the PAC Chair.
- 3.6 Replacement of any member of the PAC shall be the responsibility of the joint committee of the PAC and the TC upon being advised by the PAC Chair of such a vacancy.
- 3.7 The PAC shall notify the TC of any changes in membership and shall announce any changes at the next Full PAC meeting that is open to the public.

4.0 Officers

- 4.1 The Chair of the initial meetings of the PAC will be the original Chair of the PLC. The PAC shall have the option to elect a Chair from amongst its members at the first meeting of each new calendar year, or if the position becomes vacant.

The Chair will plan meeting agendas, preside over the meetings, and coordinate activities of the PAC. The Chair is full member of the PAC.

- 4.2 The Committee shall also elect a Vice-Chair from amongst its members at the first meeting of each new calendar year, or if the position becomes vacant. The Vice-Chair shall act as Chair in the absence of the Chair.
- 4.3 The Chair of the PAC (or designate) is a member of the TC. As noted in the TC Terms of Reference, the role of this individual would not be one of decision-making, but rather to provide a communication link between the TC and PAC

5.0 Meeting Procedures

- 5.1 The Committee shall meet on the third Tuesday in the months of January, March, May, July, September and November, and cancelled at the discretion of the Chair. The Committee will ensure the date; time and place of all meetings are advertised for the information of the public. The Chair may call additional meetings as needed.
- 5.2 Full PAC meetings shall be open to the public. The policy for public participation at full PAC meetings is set out in a policy statement that was accepted by the PAC on June 22, 2004.

- 5.3 Quorum shall consist of fifty percent of the membership, plus one.
- 5.4 Decisions are to be made by consensus, using the definition of consensus adopted by the TC (February 12, 2004):
- Reaching Consensus: Consensus building is a process of seeking unanimous agreement. It involves a good-faith effort to meet the interests of all stakeholders. Consensus has been reached when everyone agrees they can live with whatever is proposed after every effort has been made to meet the interests of all stakeholder parties.*
- 5.5 In the absence of a quorum, meetings may be held and motions may be put forward and seconded for the record. However, all motions must be fully discussed by a quorum of the committee at a subsequent meeting in order to be accepted as official and acted on by the committee.
- 5.6 All agendas, minutes and letters from the committee, and all public communications on behalf of the committee, must be approved by the committee.
- 5.7 All documentation received or produced by the committee shall be made accessible to the public. Those individuals or organizations, who submit documentation to the PAC, assume all responsibility for the accuracy of the data and information and assume all responsibility for all privacy or confidentiality requirements.
- 5.8 An annual report shall be prepared for the TC to document PAC activities. The report will include activities, lessons learned, etc., from the calendar year.
- 5.9 The Terms of Reference of the PAC will be reviewed on an annual basis.

Minutes and Secretariat

All administrative services associated with this committee will be the responsibility of Vale Inco and Xstrata Nickel. Minutes will be distributed electronically. All minutes will be forwarded to the Technical Committee and the Process Observer.