

Responsible Care® Verification Report

National Silicates

April 23-24, 2019



CHEMISTRY INDUSTRY
ASSOCIATION OF CANADA



Responsible Care®
Our commitment to sustainability.

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EXECUTIVE SUMMARY

This report documents the observations and conclusions of the independent verification team tasked with conducting a Responsible Care Verification of National Silicates an affiliate of PQ Corporation. National Silicates is wholly owned by PQ Corporation and is part of their Performance Chemicals Group. The CIAC RC verification was undertaken on April 23 & April 24, 2019 at their Valleyfield, QC plant and included some RC verification elements and activities scrutiny of their 3 other Canadian production sites.

The CIAC verification team followed the verification guidelines as recently agreed by the American chemistry Council (ACC) and the Chemistry Industry Association of Canada (CIAC). Both associations signed in 2017 an agreement for the harmonization of their RC verification process to foster greater integration of Responsible Care program elements in Canada and the United States. The National Silicates (Valleyfield plant) has undergone a RC-14001:2015 verification on August 15 & 16, 2018 with success.

PQ Corporation has been a long-standing member of ACC (USA) and been verified thru the RC-14001 protocol before and decided to integrate the National Silicates sites into the certification process in place for its US sites in 2018. PQ Corporation and National Silicates have now fully integrated corporate policies and procedures.

The CIAC verification team conducted interviews with company personnel located at the Valleyfield and Toronto sites and with individuals located in the USA that are responsible to support National Silicates on different codes of practice elements related to product sales, technical support and logistics activities (i.e.; transportation, distributors). The verification team also met some plant employees and worker representatives of the site joint Health & Safety committee to discuss RC compliance elements. The local CAP (CCC) citizens were also met to discuss local residents' issues. This was the eight Responsible Care verification completed for National Silicates but the first verification under the ACC/CIAC August 2017 RC MOU agreement. The last CIAC RC stand-alone verification was completed in May 2016.

While considering all aspects of the Responsible Care Commitments during this verification and after scrutinizing the Valleyfield site RC-14001:2015 August 2018 verification report, the CIAC RC verification team placed an emphasis on conducting a more detailed examination of company aspects related to:

- Product Stewardship
- Carriers selection and management
- Contractors selection and management (site)
- Customers approval and relationship
- Distributors selection and approval/management
- Suppliers selection/management
- Site risks identification and PSM management/MOC.
- Site community dialogue and risk communication process, and engagement with other stakeholders.
- PQ Corporation Social responsibility program and National Silicates social activities.
- PQ Corporation Sustainability program and National Silicates activities.
- Promote awareness of Responsible Care and inspire others to commit.

As a result of the examination conducted, the verification team;

is of the opinion that the Responsible Care Ethic and Principles for Sustainability are guiding company decisions and actions, and that a self-healing management system is in place to drive continual improvement. The team believes that the company is capable of responding to the range of Work in Progress and Opportunities for Improvement identified during the verification - summarized below and discussed in detail in the report. The verification is complete and no further involvement is required by the verification team.

Signed: ___Marcel Émond_____
Verification Team Leader

Date: ___May 15, 2019

For more information on this or a previous CIAC Responsible Care Verification Report, please contact your local company site or the National Silicates' overall Responsible Care coordinator:

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SUMMARY OF VERIFICATION TEAM OBSERVATIONS

Findings Requiring Action

No finding requiring action.

Works in Progress

Ensure that the PQ Corporation Motor Carrier Assessment Procedure (LOG 4100-110) is thoroughly enforced and documented by the Canadian Logistics Manager for the selection and approval of a new carrier.

Improvement Opportunities

1. OFI: Update your progress status on the 12 elements of the Process Safety Management Guide, fourth edition and implement corrective action plan as required to show the RC continuous improvement approach.
2. OFI: Look at the possibility to sign a sale contract with all your customers or otherwise seek the opportunity to include the supplementary sheet promoting HSE and product stewardship as part of your Responsible Care engagement.
3. OFI: Look at the possibility to have a formal annual meeting with the Valleyfield fire department to assure that if an emergency occurs, they will be aware of your specific needs and/or activity restrictions in responding to an emergency situation.
4. OFI: Look at the opportunity to write guidelines to support the sale force in their efforts to ensure the buyers address and make a follow up of the RC supplementary sheet content attached to the contract.

Successful Practices

1. The company wide initiative for awareness and follow up of the " Perfect day initiative with the six HSE bullets" to support the company target in order to eliminate HSE risks and incidents/accidents.
2. The National Silicates "work culture" to support the accountability and increase involvement of the Valleyfield floor employees (unionised) in performing their daily tasks including all HSE activities (JHSC).

1. INTRODUCTION

1.1 About Responsible Care Verification

As a member of the Chemistry Industry Association of Canada (CIAC), the most senior executive responsible for National Silicates, an affiliate of PQ Corporation (USA) attests annually to CIAC and its peers that the company's operations conform to the expectations contained in the Responsible Care Commitments and are guided by the *Responsible Care Ethic and Principles for Sustainability*.

The Responsible Care® Ethic and Principles for Sustainability

We are committed to do the right thing, and be seen to do the right thing.

We dedicate ourselves, our technology and our business practices to sustainability - the betterment of society, the environment and the economy. The principles of Responsible Care® are key to our business success, and compel us to:

- work for the improvement of people's lives and the environment, while striving to do no harm;
- be accountable and responsive to the public, especially our local communities, who have the right to understand the risks and benefits of what we do;
- take preventative action to protect health and the environment;
- innovate for safer products and processes that conserve resources and provide enhanced value;
- engage with our business partners to ensure the stewardship and security of our products, services and raw materials throughout their life-cycles;
- understand and meet expectations for social responsibility;
- work with all stakeholders for public policy and standards that enhance sustainability, act to advance legal requirements and meet or exceed their letter and spirit;
- promote awareness of Responsible Care, and inspire others to commit to these principles.**

** Activity not covered by RC-14001 verification

As an element of this commitment to Responsible Care, National Silicates must, every three years, participate in an external verification intended to:

1. Provide the Executive Contact with an external perspective when assessing if the company is indeed meeting the intent of the Responsible Care Commitments, along with advice on areas that may require attention;
2. Identify opportunities for assisting the company when benchmarking its own practices and performance against those of its peers, thus supporting continual improvement;
3. Contribute to the credibility of Responsible Care amongst company personnel and stakeholders, as well as the stakeholders of the broader industry;
4. Identify successful company practices that can be promoted to peers in the CIAC membership; and
5. Support the identification of areas of common weakness so that collective tools and guidance can be developed to improve performance in those areas across the CIAC membership.

Verification is conducted according to either the RC-14001;2015 (ACC) or the CIAC RC common protocol, developed by the Canadian Association's members and others, including several critics of the chemical industry. The verification is conducted by a team consisting of:

- Knowledgeable industry experts with experience in Responsible Care;

- A representative of the public at large (usually with a public interest background and with experience in Responsible Care gained from serving on the CIAC's National Advisory Panel) and
- One or more representatives of the local communities where the company's facilities are located.

Once completed, the RC Verification Report is made publicly available through the CIAC website (www.canadianchemistry.ca). National Silicates is also expected to share the report with interested persons in its communities and other stakeholders as part of its ongoing dialogue processes.

Additional information on Responsible Care and / or the verification process can be found at the CIAC website www.canadianchemistry.ca, or by contacting CIAC Director of Responsible Care glaurin@canadianchemistry.ca or (613) 237-6215 extension 233.

1.2 About National Silicates (an affiliate of PQ Corporation)

National Silicates is an affiliate of PQ Corporation. PQ Corporation has four business sectors: performance Materials, Performance Chemicals, Refining Services and Environmental Catalysts. National Silicates is part of the Performance Chemicals Group.

PQ Corporation has its head office in Malvern Pennsylvania. They do business in 19 countries and five continents and have 74 manufacturing facilities with some 3500 employees. PQ Corporation was created in 1831 and was family owned until 2004 then owned by different private funds until 2017 and is now a public traded company (PQG on NYSE).

National Silicates has been a PQ Corporation affiliate since 1931. They have 4 sites in Canada; Toronto ON (R&D, administrative head office and manufacturing), Valleyfield QC, Surrey BC and Whitecourt AB. They have some 77 employees in total. They produce multiple grades of sodium silicates products to service the following sectors: pulp & paper, mining, water treatment, construction materials, petroleum, detergents and some adhesives. All their products are manufactured in liquid solutions or solid form (powder /crystal). They produce also some liquid magnesium sulfate at the Surrey, BC plant.

1.3 About This Verification

The verification of National Silicates was conducted on April 23 and 24, 2019. The CIAC verification team conducted interviews with company personnel located at the site and as required with personnel located at the other Canadian or USA locations who are responsible for compliance to different codes of practice elements related to product sales, products technical support and logistics activities (i.e. transportation, distributors, etc.). The verification team also met some plant employees and representatives of the Joint Health & Safety committee to discuss RC compliance elements. Attachment 2 contains a list of those individuals interviewed and their affiliations.

This is the eight CIAC RC verification exercise completed for National Silicates. The last CIAC RC verification was completed on May 18, 2016. This RC verification is the first one performed after the agreed US and Canada Chemistry associations' partnership to enhance safe chemicals handling in North America (08/17/2017). The CIAC verification team took into account the outcome of the site verification performed by the registrar NSF International Strategic Registrations using the RC-14001:2015. The registrar site visit was on August 15 and 16, 2018 and the report was issued on August 31, 2018.

The CIAC RC verification team was comprised of the following individuals.

Name	Affiliation	Representing
Marcel Émond	GMEÉ	<i>Team Leader</i>
André Denis	Retiree from chemical industry	<i>CIAC industry verifier</i>
Nicole Thibeault	Valleyfield CAP member (Comité de Liaison)	<i>Community Representative</i>

2. TEAM OBSERVATIONS CONCERNING THE RESPONSIBLE CARE COMMITMENTS (CODES AND BENCHMARK AND COLLECTIVE EXPECTATIONS)

During the verification of National Silicates, the verification team looked for evidence that the company was addressing the expectations documented in the CIAC Responsible Care Commitments (152 code elements plus 28 benchmarks and randomly scrutinized activities governed by the RC-14001:2015 protocol. While considering all aspects of the Responsible Care Commitments, the team placed an emphasis on conducting a more in-depth examination of certain company aspects identified by the company or the team.

The Valleyfield site operations and activities were scrutinized but not fully verified by the CIAC verification team because they had been verified by the ACC team in August 2018. The verification team did a random check on key plant activities amongst others; Process Safety Management process (PSM), management of change (MOC), key performance indicators (KPI), risk scenarios and site Emergency plan. Those elements are part of the RC-14001:2015 verification protocol.

The CIAC verification team examined more in depth the company activities that are under the responsibility of other National Silicates or PQ Corporation personnel not located at the site that could affect the Canadian RC codes elements compliance and that were not covered or were partly scrutinized by the Valleyfield site NSF registrar personnel on behalf of the ACC during the site RC-14001;2015 in August 2018. These were amongst other;

Carriers selection and management (Logistic)

- Customers approval and relationship (Product Stewardship)
- Distributors selection and approval/management (Logistic)
- Suppliers selection/management
- Promote awareness of Responsible Care and inspire others to commit.
- Site community dialogue process including Community Awareness Panel (CCC) meeting and discussion.
- PQ Corporation/National Silicates Social responsibility
- PQ Corporation/National Silicates Sustainability program and activities.

In communicating its observations, the verification team will make repeated reference to the following categories of observations:

1. **Findings Requiring Action;** document instances where the verification team observes specific company actions (or the absence of company actions) which are inconsistent with the detailed codes and benchmark and collective expectations contained in the Responsible Care Commitments. Where possible, the team will communicate, based on their experience and judgment, why it is inconsistent and how the observation relates back to a possible gap in the expected management system and / or the ethic and principles underpinning company actions. The team may also provide advice on how the situation might be responded to.

2. **Works in Progress;** document instances where the team has observed the company self-initiating actions in response to identified gaps and deficiency arising from other internal or external audit and review activities, or where the company has self-initiated important improvement opportunities.
3. **Successful Practices;** document instances where the team believes the company has taken actions that strongly support sustained excellence in performance, and which should be communicated throughout the CIAC membership.
4. **Improvement opportunities;** identify instances where the team has observed company actions and decision making as being largely consistent with the expectations detailed in the Responsible Care Commitments, but for which the team is of the opinion that the company could support further improvement by considering alternate or additional benchmarks when undertaking its planning and decision making.

The verification team's observations of how the company has addressed the Responsible Care Commitments are as follows:

2.1 Team Observations Concerning Operations Code

The CIAC verification team reviewed the 2018 NSF Assessment Audit report from the ACC RC verification that was conducted at the Valleyfield plant prior to this CIAC RC verification. The team also reviewed the documentation requested in the CIAC verification preliminary information package. Upon review of the above-mentioned documentation, the team highlighted some activities for further scrutiny.

The team examined some site operation activities, the process safety management systems (PSM), products risk identification and mitigation process, the management of change process (MOC), the identification of operations and safety key performance indicators (KPI) and some continuous improvement activities.

The team also scrutinized the site Emergency response process and the involvement of the City First Responders. The site management made presentations and supplied additional documentation to confirm compliance to the above-mentioned activities and practices.

The site has an up to date Site Emergency Plan that is made available to the City First Responders but could not confirm if the First responders were familiar on how to safely respond to a site emergency in light of specific equipment protection requirements by the firefighters. The Fire Department personnel have not visited the site since at least February 2017.

OFI: Look at the possibility to have a formal annual meeting with the Valleyfield fire department to assure that if an emergency occurs, they will be aware of your specific needs and/or activity restrictions in responding to an emergency situation.

The company has a documented "Business Continuity" and "Critical Infrastructure" program. They have identified their vulnerabilities and have a corrective/specific issues management plan (Overall PQ Corporation).

The site's management identifies projects to reduce energy consumption. A close loop system exists for water management but does exclude water for boiler blowdowns, softwater regeneration and sanitary use.

The company has done its last PSM verification in 2013. They use as a guideline the previous Process Safety Management guide and did not update it with the 4th Edition (2014).

OFI: Update your progress status on the 12 elements of the Process Safety Management Guide, fourth edition and implement corrective action plan as required to show the RC continuous improvement approach.

The MOC process was scrutinized and some activities were reviewed. The process is elaborate, well documented and all changes (procedures, materials, organizational, etc.) must be documented and revised/approved by two or more specific persons.

The Valleyfield site and other operations and activities were scrutinized but not fully verified by the CIAC verification team. The verification team did random checks on other key plant activities such as; key performance indicators (KPI), risk scenarios and site Emergency plan. Those elements are also part of the RC-14001:2015 verification protocol.

Upon review and scrutiny of the National Silicates Valleyfield site ACC August 2018 report (RC-14001;2015 NSF Assessment Audit) and related back up documentation and company presentations, the CIAC verification team consensus is that the CIAC RC Operations code expectations are being met.

2.2 Team Observations Concerning Stewardship Code

The CIAC verification team reviewed the NSF Assessment Audit report from the ACC RC verification that was conducted at the Valleyfield plant prior to this CIAC RC verification. The CIAC verification team put emphasis on discussions with the responsible individual for the products sales to customer and to distributors and with the Logistics individual responsible for the selection and approval of third-party carriers. The sale and logistic activities are supported by proper procedures and services to customers and distributors for the safe handling and usage of their products.

The Sales department is supported by the "Technical" and the "Product Stewardship" personnel to provide product documentation, product specific training and ongoing technical support to customers as required. National Silicates has in its customer contracts a "Responsible Care" clause to highlight the RC guiding principles and their mutual responsibility to adhere to these principles concerning the handling of their products but as they mentioned not all customers agree to sign a contract. Also, as part of their routine customer visit their salesperson are asked to verify if the customer adhere to the National Silicates RC guidelines in the contract addendum (RC Supplementary sheet).

OFI: Look at the possibility to sign a sale contract with all your customers or otherwise seek the opportunity to include the supplementary sheet promoting HSE and product stewardship as part of your Responsible Care engagement.

OFI: Look at the opportunity to write guidelines to support the sale force in their efforts to ensure the buyers address and make a follow up of the RC supplementary sheet content attached to the contract.

The carrier selection and approval process were scrutinized along with the ongoing verification of the approved carrier quality of service and road performance. Documents were available for the carrier quality of service review and separate road performance review (safety and road regulations compliance). Although, there was evidence of using the PQ Corporation carrier evaluation process, it was unclear if the PQ Corporation carrier evaluation procedure was fully in use and little evidence of documents for a new carrier

selection and approval. Each carrier is provided annually with National Silicates driver requirements; the carrier in turn delivers this during their employee training sessions. Additional driver booklets stating all rules to load /offload and transport their products are available at each site.

WIP - Ensure that the PQ Corporation Motor Carrier Assessment Procedure (LOG 4100-110) is thoroughly enforced and documented by the Canadian Logistics Manager for the selection and approval of a new carrier.

2.3 Team Observations Concerning Accountability Code

The CIAC verification team reviewed the last NSF Assessment Audit report from the ACC RC verification that was conducted at the Valleyfield plant prior to this CIAC RC verification. The team also scrutinized the documentation requested in the CIAC verification preliminary information package.

The team focused on the following activities; Community Dialogue including risks communication to the community residents, Social Responsibility including company/site personnel involvement and finally Sustainable Development activities.

All four sites management are active supporters of CIAC RC activities (e.i.; CIAC subcommittees; SHARE, TRANSCAER, etc) and locally they are an active participant in the Valleyfield site "Comité de Liaison" (CAP). There are also some other industrial neighbors that are involved and participating in the CdL meetings because of the National Silicates management leadership. The verification team met with some Comité de Liaison representatives (CAP) and they were well satisfied with the National Silicates local management involvement and ongoing attention to their preoccupations. The "Comité de Liaison" publish every 2 years a resident bulletin on the nearby companies' key activities and includes contact information of the companies and the "Comité de Liaison" representatives if they need to be reached. They are now due for a 2019 resident bulletin publication. The other National Silicates sites do an annual walk about to the nearby residents and deliver a company pamphlet highlighting the company activities and what to do in case of an emergency. The National Silicates Toronto site is a participant in the Toronto CAER group.

The sites management team personnel have regular contacts with the Municipal authorities and are supporting and/or participating in several CIAC driven meetings/events with the Provincial or Federal government.

All sites have a "dedicated person" and phone number that can be reached in case of an emergency or a complaint. That information was publicized in a pamphlet mailed to the local nearby residents. Some Valleyfield site nearby citizens' complaints were received in the last 2 years due to dust events. Wash tickets were provided in some cases.

PQ Corporation and National Silicates have a comprehensive "Social Responsibility" initiative favoring the involvement of all its employees in supporting local societal activities. Such activities include sponsorship, donations, offers of sweat equity (free employee time) to non-profit organization, and support of several local nonprofit organizations.

3. TEAM OBSERVATIONS ON THE COMPANY MANAGEMENT SYSTEM

It is a requirement of Responsible Care that companies have a documented, self-healing management system or systems capable of identifying and responding to deficiencies and otherwise supporting continual

improvement across all company business units, functions, and sites and as a framework for implementing the Responsible Care Commitments.

PQ Corporation corporate policies and procedure are applied worldwide except when local regulations prevail. The verification team studied National Silicates (PQ Corporation) management system(s) and compared and contrasted the attributes of that system(s) to those of a self-healing overall management system as discussed in the CIAC Management System Guide.

The verification team's related observations to the company management system(s) are as follows:

They utilize the ISO Technical Management system standards for all their business activities. These standards are well documented in the RC-14001:2015 Technical specification (59 pages). Before 2017, they were using the ISO-14001 structure (Environment).

They also use as a reference, the CIAC suggested "cross reference" document to assure compliance with the CIAC 3 codes of practice and their 152 elements. Most of the 152 elements are covered within the RC-14001:2015 protocol.

The ACC/CIAC memorandum of understanding (MOU) highlights in the appendix A.3 activities included in the 3 CIAC code elements which are partly or not covered by the RC-14001 verification process.

For their safety, security and environmental protection activities they comply with the legal provincial and federal regulatory requirements and the RC-14001:2015 technical specification requirements. All their management process, procedures and practices are audited by third party auditors for the benefit and requirement of both associations (ACC/CIAC).

Since 2018, National Silicates operates the business in full compliance of the PQ Corporation policies and procedures. PQ Corporation has elaborated Social and Sustainability policies and procedures.

3.1 Observations on the PLAN Step

During the PLAN Step of the management system, PQ Corporation in collaboration with National Silicates decides what are the "high level" goals of the company and how they will be met. In determining those goals, it is expected the company will look inward, across its operations, but will also look outward, considering the expectations of: stakeholders; regulatory requirements; relevant CIAC Responsible Care Commitments and supporting tools; and other industry benchmarks. In considering the PLAN Step of National Silicates management system, the verification team has scrutinized the August 2018 RC-14001:2015 verification report and did a random check of the National Silicates procedures and practices and observed amongst others the following:

All employees have a specific training program and are trained to perform several tasks above and beyond their regular work.

They have elaborated and rigorous MOC procedures for approving any key changes such as strategic job tasks, equipment changes, new projects, etc. that could affect HSE performance.

They have a software program (CAPA) to identify and track all "critical" activities including KPI's until task completion.

They have annual goals with an identified responsible individual and ongoing progress is tracked at their management meetings.

3.2 Observations on the DO Step

During the Do Step in the management system, the company converts the decisions of the PLAN Step into action and ensures awareness and understanding by all involved. It is expected that the company will implement an organizational structure, assign responsibilities to appropriate personnel, supply sufficient training and resources to execute planned actions and develop and document standards, procedures and programs, as applicable.

In considering the DO Step of the PQ Corporation/National Silicates management system, the team observed amongst others the following:

The management team identifies resources needed and necessary job tasks training, identifies operations and manufacturing risks, key areas of focus from previous activities, incident /accident tracking information from all plants in PQ Corporation to support HSE continuous improvement activities.

Starting in 2018, the company (PQ Corporation at all sites) has developed an additional program to increase all employees' awareness towards their ongoing personal and HSE activities. It is call " A perfect day".

A "Perfect Day" definition is a workday with; no recordable injury, no first aid requiring professional assistance, no significant spill/release, no regulatory violation, no permit deviation, no non-compliance of the cardinal rules. That program is monitored by the PQ Corporation senior management team to identify the most common deficiencies and implement corrective action plans.

The company wide initiative for awareness and follow up of the "Perfect Day" initiative with the six HSE bullets to support the company target in order to eliminate all HSE risks and incidents/accidents is considered a successful practice.

All sites have an HS committee to support personal and operations safety. The company has a work culture and ethic to enhance all floor employees to be proactive in their daily tasks on continuous improvement.

The Valleyfield plant Joint Health and Safety Committee (JHSC) is completely autonomous in managing all work safety activities and issues and have a discretionary budget to implement an equipment improvement or a project to increase floor workers safety. Upon meeting with the worker representatives of this committee, it was noticed that they can suggest and implement safety improvement projects with little management oversight. The site had only 1 recordable injury in the last 11 yrs.

The National Silicates "work culture" to support the accountability and increase involvement of the Valleyfield floor employees (unionised) in performing their daily tasks including all HSE activities (JHSC) is considered a successful practice.

3.3 Observations on the CHECK Step

During the CHECK Step in the management system, actions carried out in the DO Step are assessed to determine if they are actually being carried out according to plan, and whether they are achieving the desired outcomes and delivering continual improvement. Here, the overall management system and components will

be reviewed along with employee competences for assigned responsibilities, internal and external audits will be undertaken, incidents will be assessed to identify root causes, and performance measurement will be conducted and reviewed.

In considering the Check Step of the PQ Corporation/National Silicates management system, the team observed amongst others the following:

National Silicates has a comprehensive annual internal audit program to confirm ongoing compliance with the RC-14001:2015 & the CIAC RC 3 codes of practice and its 152 elements. The verification team scrutinized the 2017 and 2018 management meetings and reports on management system audits.

The external audits are performed by third party consultants. Since 2017, National Silicates is fully implementing the RC-14001:2015 protocol (ACC) for all its Canadian business. The Valleyfield site was verified in August 2018 using that protocol. No "Finding Requiring Action" was identify. The RC-14001:2015 full audit system is performed every 3 years and has an annual maintenance (partial) audit the second and third yr.

The CIAC verification team performs every three years a RC verification to confirm its compliance to the 3 codes of practice and 152 elements. The last stand alone CIAC RC verification was performed in 2016. The 2019 CIAC RC verification was performed based on the 2017 ACC/CIAC MOU and RC verification guidelines (MOU appendix A.3 activities).

The verification team reviewed the RC 2016 report outcome; 2 items "Work in Progress" and 12 "Improvement Opportunities". The company has addressed all of them and had a corrective or improvement action plan as required. Supporting documents were scrutinized.

3.4 Observations on the ACT Step

During the ACT Step in the management system, the company translates the results of the CHECK Step into corrective actions for improvement. This includes revisiting the PLAN Step to decide whether changes are needed to the company's stated goals or action plans, policies and procedures for achieving those goals. Considerations when examining the ACT Step include whether and how: audit and review findings are responded to; performance is communicated internally and externally; employee and contractor performance is rewarded or corrected, etc.

In considering the Act Step of PQ Corporation/National Silicates management system, the verification team observed amongst others the following:

The site has a comprehensive Intranet based management system through SharePoint for logging all audits findings and resulting improvement opportunities through identified corrective action plans (CAPA). Also, all KPI's, incident, accident, MOC are tracked with this or other systems. Each corrective action plan has a set target completion date and work progress is tracked by a responsible individual either at the plant level, or as required at the corporate level.

4. TEAM OBSERVATIONS ON THE RESPONSIBLE CARE ETHIC AND PRINCIPLES FOR SUSTAINABILITY

Each CIAC member company is formally committed to the ethic of *"Doing the right thing and being seen to do the right thing."* This ethic, along with the principles for sustainability is expected to guide the company's decision making and practices. In conducting the verification, the team is looking to understand how well the

ethic is understood and adopted within the company, and the degree to which the principles inform the manner in which the company does its business.

The verification team carefully observed the National Silicates decision making processes and actions and compared and contrasted the attributes of those with the attributes of a company guided by the Responsible care Ethic and Principles For Sustainability as discussed in the Responsible Care Commitments (Appendix E).

The scrutiny of the PQ Corporation/National Silicates Sustainability initiatives and ongoing practices has identified numerous activities confirming that they act daily in support of the Responsible Care Ethic and fully adhere to the Principles for Sustainability. Amongst these are;

- The five "Pillars of Sustainability" highlighting the areas to identify activities to reduce their environmental footprint.
- RC Supplementary sheet attached to the sales contract highlighting National Silicates approach and principles to HSE and product stewardship.
- The ongoing customer support through their Product Stewardship, Technical Support and Stewardship personnel on how to handle safely their products.
- The high percentage involvement of plant personnel in local non-profit organization to improve the local resident quality of life with strong support from the corporate office staff.
- Their resource conservation program to reduce their manufacturing footprint and ongoing effort from year to year (water and energy usage).
- Ongoing dust control and emission reduction to improve their immediate neighbor quality of life.
- Their implication at all levels of government to foster effective regulations and promote safe handling and usage of chemicals in support of the CIAC personnel.
- Valleyfield senior management personnel proactive involvement with their industrial neighbors to facilitate the discussion on the preoccupations of the local "Comité de Liaison" (CAP).

5. VERIFICATION TEAM CONCLUSION

As a result of the examination conducted, and in consideration of the observations communicated within this report, the verification team;

is of the opinion that the Responsible Care Ethic and Principles for Sustainability are guiding company decisions and actions, and that a self-healing management system is in place to drive continual improvement. The team believes that the company is capable of responding to the Work in Progress and the Opportunities for Improvement identified during the verification, as summarized in the Executive Summary and discussed in detail in the report. The verification is complete, and no further involvement is required by the verification team.

Marcel Émond
CIAC Verification Team Leader

May 15, 2019

COMPANY RESPONSE TO VERIFICATION TEAM REPORT

On behalf of National Silicates, I have reviewed this verification report. The observations and conclusions contained in the report have been discussed with the verification team.

National Silicates would like to thank our community representative, Nicole Thibeault, for her dedication to ensuring a transparent process with the community and we would like to thank both Marcel Émond and André Denis for their valuable comments to help National Silicates improve. Further, many thanks to the Valleyfield members of the CCC (Comité de Liaison) for taking the time to meet with the verifiers.

National Silicates will communicate the results of the verification exercise with its CIAC peers at their next meeting, and will discuss the verification results with our stakeholders, including those representing communities near our operating sites.

We will give consideration to the Improvement Opportunities identified by verification team and will assist the CIAC in communicating and sharing the identified Successful Practices to other CIAC members. Plans will be developed and implemented to respond to the Work in Progress identified by the verification team. Our progress in implementing those plans will be discussed when preparing our Annual Statement of Re-Commitment to Responsible Care and communicated to the verification team at the time of our next verification.

*Larry Masaro
Director of Plant Operations
National Silicates
May 10, 2019*

INTERVIEW LISTS

A: Company Personnel

Name	Position	Location
Larry Masaro	Director Plant Operations & Executive contact	Toronto
Michel Brassard	Valleyfield Plant Mgr & Regional Mgr	Valleyfield
Jennie Houle	Safety & Health Manager & RC Coordinator	Toronto
Garry Grover	Manager HSE & Management System	Malvern, PA (USA)
Eliana Sosa	Lead Environmental Specialist & Regulatory Affairs	Toronto
Dave Patterson	Director, Distributor Sales	Toronto
Mike Vinca	Logistics & Transport Manager	Toronto
Lynda Ryder	Director Employee Relations	Toronto
Erin Bending	Product Stewardship Manager	Malvern, PA (USA)
Yvon Guimond	JHSC member (mechanic)	Valleyfield
Martin Pelletier	JHSC member (mechanic)	Valleyfield

B: External Stakeholders - Others

Name	Company / Organization	Position	Location
France Guillote	citizen	Comité de Laison /CAP member	Valleyfield
Jean Luc Pomerleau	citizen	Comité de Laison /CAP member	Valleyfield
Robert Savard	citizen	Comité de Laison /CAP member	Valleyfield
France Larouche	citizen	Comité de Laison /CAP member	Valleyfield
Nicole Thibeault	citizen	Comité de Laison /CAP member	Valleyfield



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