



RESPONSIBLE CARE[®] Verification Report

Nexen Energy ULC

April 11 - 14, 2016



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 Nexen Energy ULC (Nexen). The verification was undertaken on April 11 to April 14, 2016 and included team visits to Calgary headquarters, Balzac Abandonment and Reclamation, Balzac Power plant, North East British Columbia (NEBC) offices in Fort Nelson, BC and the Gas Plant at Dilly Creek, near Fort Nelson BC.

This was the 3rd Responsible Care verification completed for Nexen. The last verification was completed between August 25 and August 28, 2014.

While considering all aspects of the Responsible Care Commitments during this verification the team placed an emphasis on conducting an in-depth examination of company aspects related to:

- Sustainability in a climate of downsizing and change of management and responsibilities
- Implementation of Responsible Care at the Balzac Power Station in January of last year.
- Balzac Abandonment and Reclamation (BAR) efforts and the communities' opinion of due diligence
- The status of efforts to ingrain the Responsible Care ethic into company culture especially the NEBC workplace and with hourly contractors.
- The current state of the company's Process Safety Management (PSM) journey.
- The perception of company emergency response particularly in light of recent national attention.

The company is currently in a state of transition as the decision was recently taken to incorporate Responsible Care into all business units including Oil Sands. This has had some impact such as the consolidation of support groups and moving to a shared-services delivery model and, where appropriate, the team has made suggestions for accommodation and improvement.

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 opportunities 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: _____

Gerry Whitcombe

Verification Team Leader

Date: ___ May 10 2016___

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

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Summary of Verification Team Observations

Findings Requiring Action

There were no Findings Requiring Action

Improvement Opportunities

- Consider using the Chemistry Industry Association of Canada (CIAC) Management System Manual as a template for developing, documenting and implementing the new company management system (i.e. use the management system to implement the management system). Ensure the existing cross reference between company standards (etc.) and the codes is maintained at a detail sufficient to determine there is no slippage.
- Recognize that it is the purview of the upper level Management System to hold all sub-structures (e.g., group, element, standard), that have been defined by the Management System, accountable for ensuring their systems have fully implemented all codes and are capable of discovery and self-healing. (Reference the design area where there are no specific references to a specific code element and to team observations related to Social Responsibility.)
- Consider developing a system to easily allow employees to input into the Risk Registry system hazards about which they become aware, both internally and externally. (OP 7)
- Consider implementing an ongoing (i.e., post-employment) employee medical health surveillance program. (OP27)
- Consider developing a link between the process that develops worst case scenarios (i.e., in Process Safety Management) and the process that makes those scenarios available to the public (community outreach).
- At each operating facility and office location, contact surrounding businesses and neighbouring tenants to share risk information and to develop an integrated emergency response plan, as appropriate. (OP35)
- Review the Blackdiamond camp contract from a Responsible Care perspective. This is an opportunity to include Responsible Care expectations in the contract and to also 'Promote Responsible Care by name' with the vendor. (ST105)
- Develop a template contract (based perhaps on the Blackdiamond contract) for other vendors.
- Focus on possible local suppliers for all Nexen contracts in communities near company activities. (Appendix A: Social Responsibility)
- Consider briefings are held and understandings achieved in respect of the recent Supreme Court ruling on Metis and Non-Status Indians.
- Ensure an effective dialogue process continues with local stakeholders especially during periods of low activities. (AC 129)
- Expand the Continuous Improvement = Sustainability Process, that has been applied to process safety procedures, to other Responsible Care related procedures as appropriate.

Works in Progress

- Work continues on the excellent Hazard & Risk Registry process and current activity involves the development of a stewardship process.
- Implementation of the Calgary office safety program. Also, consider adding natural hazards (for the office tower) to the Risk Registry.
- Installation of the new ENABLON software and other improvements to continue with enhancements to the Incident Investigation process.
- Enhancing the current Business Continuity Process.
- Completing the full approval and implementation of standards currently identified for development.
- Data collection phase on energy intensity with the view of establishing related KPIs.
- Development of a corporate wide Journey Management System.
- Establishing a standard for operations staff involvement in engineering design work.

Successful Practice

- The Continuous Improvement = Sustainability example where process safety procedures were broken down into many self-inspection elements to assess how well the procedures are delivering in the intent.
- Responsible Care Principles of Sustainability Card with highlighted wording.
- The Operator Code of Ethics developed in a similar format to the CIAC Responsible Care Ethic & Principles for Sustainability.
- The electronic workflow process in the company's online system referred to as "Livelink" which is used to review and approve new Divisional Standards, which ensures understanding and acceptance by the users, prior to their implementation.
- The Responsibility-Accountability-Consult-Inform (RACI) matrix used to determine who needs to be involved (or embedded) in the various steps of the stage gate process for the effective execution of engineering projects.

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 Nexen's operations in Canada 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 Responsible Care Ethic and Principles for Sustainability.

The Responsible Care® Ethic and Principles for Sustainability

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.*

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

- 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;
- Identify opportunities for assisting the company when benchmarking its own practices and performance against those of its peers, thus supporting continual improvement;
- Contribute to the credibility of Responsible Care amongst company personnel and stakeholders, as well as the stakeholders of the broader industry;
- Identify successful company practices that can be promoted to peers in the CIAC membership; and
- 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 a common protocol, developed by the 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 Verification Report is made publicly available through the CIAC website (www.canadianchemistry.ca). Nexen 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 the Responsible Care staff at CIAC at glaurin@canadianchemistry.ca or (613) 237-6215 extension 233.

1.2 About Nexen

Nexen Energy ULC (Nexen) is a Canadian based upstream oil and gas company developing energy resources in the UK North Sea, offshore West Africa, the United States and Western Canada. A wholly-owned subsidiary of CNOOC (China National Offshore Oil Corporation) Limited, Nexen has three principal businesses: conventional oil and gas, oil sands and shale gas. It is the shale gas part of the business (North American Gas & Tight Oil, NAGTO) that has been and is currently the focus for Responsible Care verification.

In Canada NAGTO has a gas fired power plant operating in Balzac, north of Calgary, Alberta; is conducting abandonment and remediation activities at a former gas plant also in Balzac (Balzac Abandonment and Remediation, BAR) and has gas extraction facilities in north eastern British Columbia (NEBC), near the community of Fort Nelson. NAGTO has approximately 100 employees and shares headquarter space and services with its other two sister businesses in Calgary Alberta.

1.3 About This Verification

The verification of Nexen was conducted on April 11 to April 15, 2016 and included team visits to company headquarters in Calgary Alberta, Balzac Alberta, Fort Nelson BC and the Dilly Creek gas extraction facility north of Fort Nelson. During the course of the verification, the team had the opportunity to interact with a wide range of company personnel, as well as stakeholders external to the company in Fort Nelson and Balzac. Attachment 2 contains a list of those individuals interviewed and their affiliations.

This was the 3rd Responsible Care verification completed for Nexen. The last verification was completed between August 25 and August 28, 2014.

The verification team was comprised of the following individuals.

<u>Name</u>	<u>Affiliation</u>	<u>Representing</u>
Gerry Whitcombe	CIAC Verifier	Industry (team leader)
Dave Mack	CIAC Verifier	Industry
Keith Purves	CIAC Verifier	Public-At-Large
Randy Smith	Community Verifier	Balzac region in Alberta
Angus Dickie	Community Verifier	Fort Nelson, British Columbia

2. Team Observations Concerning the Responsible Care Commitments (Codes and benchmark and Collective Expectations)

During the verification of Nexen, the verification team looked for evidence that the company was addressing the expectations documented in the Responsible Care Commitments (152 code elements plus 28 benchmark and collective expectations). While considering all aspects of the Responsible Care Commitments during the verification, the team placed an emphasis on conducting a more in-depth examination of certain company aspects identified by the company or the team.

These aspects along with a brief summary of team observations are:

- Sustainability in a climate of downsizing and change of management and responsibilities.
 - The team observed somewhat of an entrepreneurial climate relating to the ethic of Responsible Care that might not be expected given the current circumstances.
- Implementation of Responsible Care at the Balzac Power Station in January of last year.
 - The team did not have the opportunity to perform deep drills at the power station, but in review of the the verification topics selected for this area, touring the site and in talking with site employees the team is of the opinion that implementation has been successful.
- Balzac Abandonment and Reclamation (BAR) efforts and the communities' opinion of due diligence.
 - Impressive process and results. Great planning, communication, interaction with contractors, innovation (sulphur removal) and execution.
 - The company generally received high community praise for their efforts pertaining to BAR including items such as the newsletter, the interaction with the city, conduct of the trucking company removing material, proactive communication of intent and plans and answering questions.
- The status of efforts to ingrain the Responsible Care ethic into company culture especially the NEBC workplace and with hourly contractors.
 - There was an enthusiastic, positive response to questions related to the Responsible Care ethic by NEBC employees.
 - Dilly Creek facilities housekeeping is outstanding.
 - The Continuous Improvement = Sustainability effort demonstrates an important advance in applying the ethic.
 - The team did not have the opportunity to talk with NEBC contractors.
- The current state of the company's Process Safety Management (PSM) journey.
 - There is a sound base in place for continuing the PSM journey. This consists of a foundation based on the Centre for Chemical Process Safety (CCPS) 20 Elements of Risk Based Process Safety and the excellent Risk Registry database and tool developed by the professionals in this area. In the field, the self-assessments conducted under the Continuous Improvement = Sustainability effort demonstrate bringing the culture to the operating areas.
- The perception of company emergency response particularly in light of recent national attention.
 - The team was favourably impressed by efforts to respond to recent emergencies particularly from the perspective of on-going communications.
 - The community members who spoke with the team did not discuss any concerns with company emergency response or management.

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 verification 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 verification 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 verification 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

2.1.1 Design and Construction of Facilities and Equipment

As was previously mentioned the company is transitioning to a shared-services model where service groups provide their expertise to all business units. The Engineering group is one of these. Consolidation has occurred around the Oil Sands Engineering group (Design and Commission, D&C) and work is underway on combining NAGTO and Oil Sands standards.

All large and small projects are governed by the Business Process Management System (BPMS) stage gate process but work is underway to develop a separate process for small projects. The process includes a RACI (Responsibility, Accountability, Consult, Inform) matrix that guides practitioners in selecting required skills and, if needed, embedding specific personnel in the project. Work is underway on a specific standard to guide in operating staff involvement in engineering design work (WIP below).

During our interviews it was determined that certain aspects related to specific codes have not been documented in the group's work practices (specifically from OP4, "incorporates features which will minimize adverse effects on people, property and the environment which could remain or develop after closure, decommissioning or demolition."). We believe this is an example of a management system weakness and have placed it in that section of the report.

Successful Practice

- The Responsibility-Accountability-Consult-Inform (RACI) matrix used to determine who needs to be involved (or embedded) in the various steps of the stage gate process for the effective execution of engineering projects.

Work In Progress

- Establishing a standard for operations staff involvement in engineering design work.

In consideration of Responsible Care code requirements, the team is of the opinion that implementation expectations have been met for this area.

2.1.2 Operations Activities

The company is moving to a holistic approach to characterizing and mitigating its hazards and risks. It is based on an Oil and Gas Industry standard model and has resulted in a risk registry for each facility. Please see "Process Safety Management" later on in this report.

In consideration of Responsible Care code requirements, the team is of the opinion that implementation expectations have been met for this area. Specific comments are given under the subheadings below.

a. General Considerations

The Risk Registry provides a comprehensive (and dynamic) listing of all potential hazards. It is currently reviewed annually and input for unlisted hazards is widely sought.

b. Laboratory Practice

A review of this area found no issues.

c. Transportation and Physical Distribution

The company does not distribute any of its product other than by pipeline. Gathering lines move gas from underground to the two operating gas collection pads (ESHO and TISEA) that then feed gas into two sales lines near the pads. For further information, please see Maintenance below.

The company belongs to the Area Operating Committee (AOC) made up of suppliers and the marketer allowing the suppliers to negotiate the marketer's system performance.

d. Maintenance

Safety and business critical equipment have been identified with preventive/predictive maintenance programs managed in SAP (proprietary comprehensive systems management software).

There is a pipeline integrity management system in place for company owned pipelines which includes aerial surveillance by helicopter using Forward Looking InfraRed (FLIR) cameras to detect for leaks. Pressure drop information is used for leak detection and smart pigging is also applied. There is also a step in the process to check for additional work when preventive work has been scheduled.

Maintenance contractors are used extensively at pad sites. Due to the remoteness of the sites contractors tend to be assigned long term and Nexen closely monitors compliance with its standards and procedures.

2.1.3 Safety and Security

In consideration of Responsible Care code requirements, the team is of the opinion that implementation expectations have been met for this area. Specific comments are given under the subheadings below.

a. Occupational Health and Safety

The company has a zero injury goal and has put programs in place to help in achieving that goal. Hazards are controlled making use of the Risk Registry, field level hazard assessments, tailgate sessions and through the use of life saving rules. There is a documented industrial hygiene program and pre-employment medicals but no on-going surveillance medicals.

Balzac has been reporting leading indicators for seven years now with quarterly reporting of both leading and lagging indicators. They are currently at 1600 days with a loss time injury.

Calgary is currently reinstituting an office tower safety program and the team suggests adding natural events to its risk registry.

At Dilly Creek the team learned the company cannot use GPS tracking of vehicles coming to and leaving the pad site as this requires complete cell coverage and currently it is only intermittent. However, there is a new corporate Journey Management Plan under development.

Improvement Opportunity

- Consider implementing an ongoing (i.e., post-employment) employee medical health surveillance program. (OP27)

Works in Progress

- Implementation of the Calgary office safety program. Also, consider adding natural hazards (for the office tower) to the Risk Registry.
- Development of a corporate wide Journey Management system.

b. Process Safety Management

There is a documented Process Safety management program in place with twenty elements benchmarked against related aspects issued by the Centre for Chemical Process Safety (CCPS). A new Canadian Standard is in the process of being developed and company personnel are participating in this activity.

The cornerstone for the company's PSM program is their Hazard & Risk Registry. For each location all hazards (both new and changed) are identified and are characterized as to risk. Actions for risk mitigation are included and any indicated Hazops are revalidated using the SAP system. The Registry is currently managed on an ad-hoc basis and a stewardship process is under development.

A self-inspection system has been developed in Dilly Creek to keep ahead of issues related to the execution of procedural steps related (initially) to process safety procedures (confined space, lock out/tag out etc.). For what's been accomplished so far this is a successful practice, as it broadens out to cover more procedures and perhaps equipment, this is a work in progress.

Improvement Opportunities

- Consider developing a system to easily allow employees to input into the Risk Registry system hazards about which they become aware, both internally and externally. (OP 7)
- Consider developing a link between the process that develops worst case scenarios (i.e., in Process Safety Management) and the process that makes those scenarios available to the public (community outreach).
- Expand the Continuous Improvement = Sustainability Process, that has been applied to process safety procedures, to other Responsible Care related procedures as appropriate.

Works in Progress

- Work continues on the excellent Hazard & Risk Registry process and current activity involves the development of a stewardship process.

Successful Practice

- The Continuous Improvement = Sustainability example where process safety procedures were broken down into many self-inspection elements to assess how well the procedures are delivering in the intent.

c. Emergency Management

There is a company emergency management standard upon which all local adaptations are based (7B document). Emergency management personnel are trained in recognized incident command system techniques.

In Balzac the team observed encroachment by warehousing operations upon the power plant site. It is important to "know your neighbours" as the smoke from a nearby fire could pose a hazard to site employees and use of access and egress roads. Consideration should also be given to evacuation traffic issues.

At Dilly Creek a contracted primary care paramedic (PCP) (capable of performing health assessments) is located full time on site.

Improvement Opportunity

- At each operating facility and office location, contact surrounding businesses and neighbouring tenants to share risk information and to develop an integrated emergency response plan, as appropriate. (OP35)

d. Malicious Intent

There are no observations under this topic

e. Critical Infrastructure/Business Continuity

The company has CI/BC processes in place and has reviewed them opposite the CIAC checklist. Currently the processes are under review.

Work in Progress

- Enhancing the current Business Continuity process.

f. Incident Reporting and Investigation

The company has just implemented a new process, Event Recording & Analysis (ERA), and is currently making some changes to the procedure. As well, new management software is being installed. The system and software will allow better trending and action management.

Work in Progress

- Installation of the new ENABLON software and other improvements to continue with enhancements to the Incident Investigation process.

2.1.4 Environmental Protection

To protect wildlife and biodiversity there are standards governing (Species Management Standard and an Invasive and Pest Species Management Standard) and programs managing the company's interaction with plants and animals near its operations. One ongoing study involves monitoring caribou movements in NEBC.

The company utilizes hydraulic fracturing (fracing) to access its gas resources in NEBC. It is a highly regulated operation and to ensure there is no impact on local lakes, rivers and aquifers the company uses steel casings and concrete barriers to completely seal the drill well from its surroundings. The company does significant groundwater monitoring (potable and nonpotable aquifers) detecting no transfer of fracing material into either aquifer. Seismic activity is monitored with no significant events at company locations.

Untreated, brackish groundwater has been successfully extracted for use in high pressure fracing and then returned to its reservoir after use thus avoiding the use of fresh water and treating it after use.

The company recently made use of untreated groundwater (a global first) for a drilling operation saving of 70% of the treated water normally used. It is also attempting to manage its surface water resource better by collecting water in the spring for use throughout the year.

Well pads are maintained to a very high housekeeping standard throughout their lives and restoration programs are in place to return the site to previous conditions once the well has stopped producing.

In the works are plans to reduce the footprint of the final pad by staging drilling operations better.

In consideration of Responsible Care code requirements, the team is of the opinion that implementation expectations have been met for this area. Additional comments are given under the subheadings below.

a. Emissions and Waste Reduction

Environmental emissions are mainly products of combustion from power generation and gas compressor drivers. There is a continuous emissions monitoring system for NOX emissions at Balzac. There is also some fugitive emissions of natural gas from process infrastructure.

b. Handling, Treatment and Disposal of Wastes

Nexen participates in a conservation program for assessing waste facilities and transporters (Waste Recovery Assessment Program). One strategy has been to review the five-year reduction of recyclables, cuttings, filters, lube oil, miscellaneous items and some contaminated soil.

Employees and contractors are trained and updated with information on hazardous material. External expertise is provided from other departments within Nexen and when required from outside resource

providers. There is ongoing research on ways to manage and reduce waste, one example being the capturing of well gas instead of venting.

At BAR the company found a use for the bottom one to three feet of the sulphur pile. An agro company is taking the soil and sulphur to make a compost fertilizer by combining this material with grocery store waste material and chipped wood waste.

2.1.5 Resource Conservation

Some examples of ongoing resource conservation efforts are:

- Working with third parties in making more use of natural gas for local power generation in camps.
- Working on reducing the footprint of gas operations by replanting on pads while still in operation and by extending the length of well development time allowing for better staging of drilling operations.
- Trying some innovative design in the layout of piping to accommodate gravity flow of any water that might be in the system.

The company is at the monitoring stage of an energy intensity key performance indicator (KPI).

Work in Progress

- Data collection phase on energy intensity with the view of establishing related KPIs

2.2 Team Observations Concerning Stewardship Code

For the areas reviewed the team found Responsible Care code implementation expectations were being met.

2.2.2 Expectations with Respect to Other Parties

Third party pipelines are used to transport product from company field facilities comingled with other producers' product to central facilities for further processing and subsequent distribution to market. The company participates in quarterly users group meetings to address any operational issues.

The contractor management process for the Dilly Creek facility is rigorously managed due to the remoteness of the operation.

The contract for accommodations near the Dilly Creek facility at the Blackdiamond camp is up for renewal and presents an opportunity to include Responsible Care in its wording.

Improvement Opportunities

- Review the Blackdiamond camp contract from a Responsible Care perspective. This is an opportunity to include Responsible Care expectations in the contract and to also 'Promote Responsible Care by name' with the vendor. (ST105)
- Develop a template contract (based perhaps on the Blackdiamond contract) for other vendors.

2.3 Team Observations Concerning Accountability Code

2.3.1 Operating Site Communities

The process is documented and very well executed and the team is of the opinion that the company meets Responsible Care code implementation expectations.

In Balzac the power plant is up and running and although it has a very different risk profile compared with former gas operations it maintains strong dialogue channels. The BAR project has also maintained strong dialogue with the local community, the City of Calgary and its vendors with an example of seeking out and hiring a trucking contractor for the sulphur removal part of the project with a requirement of ensuring the public would be treated with respect. Public feedback has confirmed a good choice was made.

The reality of the reduced size of operations and the lower risk profile has resulted in less face to face time with the community panel. This is largely understood but lamented. The newsletter was appreciated and having a list of contact names was very helpful. The community was also very thankful for all the donations the company has made over the years with one such recipient awarding a plaque to the company for its contributions.

The company maintains an active dialogue process in Fort Nelson also. The components conform with code requirements and program plans are carried out by local staff. The company uses a matrix to identify the how, what and when to communicate; an active list of stakeholders is in place and stakeholders receive regular newsletters. Regular meetings to provide updates are sought with the mayor and council as well as local first nations.

The community members the team interviewed had nothing but high praise for Fort Nelson NATGO personnel who, as community members, participate in and as company representatives, sponsor, community events. They are also appreciative of Corporate donations to specific endeavours. As in Balzac they have seen a fall-off in dialogue with the company but recognize the impact the current economy is having on the company.

Notwithstanding these good efforts, a situation exists in Fort Nelson where local government and businesses feel they have been left out of economic activity resulting from drilling operations. The existing gas operation does spend most of its discretionary dollars locally and it is much appreciated. But the amounts pale when compared with what is spent during a drilling campaign and the local community depends on those expenditures to maintain and grow a dynamic, desirable community.

Given that the company has a published Social Responsibility policy where local spending is an important part of the commitment the team views the existing practice to be inconsistent and believes the company stands to lose much of its community good will should this situation continue, particularly when the economy improves.

During the verification the Supreme Court of Canada ruled that Metis and Non-Status Indians must be extended the same rights and privileges as Status Indians (Daniels v. Canada (Indian Affairs and Northern Development), 2016 SCC 12). This will have impacts in dealing with all First Nations people particularly from a dialogue perspective and the company should ensure senior employees and those involved in dialogue are informed.

Improvement Opportunity

- Focus on possible local suppliers for all Nexen contracts in communities near company activities. (Appendix A: Social Responsibility)
- Consider briefings are held and understandings achieved in respect of the recent Supreme Court ruling on Metis and Non-Status Indians.
- Ensure an effective dialogue process continues with local stakeholders especially during periods of low activities. (AC 129)

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.

The verification team studied Nexen's 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:

The company has a documented Responsible Care management system that is well laid out, comprehensive and succinct. It is accessible to all company employees via the NAGTO HSE&SR Portal. The team agrees the company sufficiently meets Responsible Care implementation expectations for its management system.

All Responsible Care codes are covered within the twelve elements listed within the system. Company expectation is that owners of these elements will develop and use a templated management system for the implementation, maintenance and continual improvement of all defined elements, resulting in management systems within an overall management system model.

Annual Responsible Care attestation is done using a defined review process with key personnel providing related conformance feedback to the executive contact to facilitate sign-off.

Continual improvement is inherent at all levels of activity (e.g., within standards, the management system and business activities in general)

The team has a concern about the discovery and self-healing effectiveness of the management system(s). On one occasion when a deep drill on code compliance was done by the team it was discovered that the specific requirement under a code was not in place (documented) and on another occasion it was discovered that key policy directions were not being met.

With respect to the first item, the group being interview was in transition to NAGTO and understandably not yet up to speed on their Responsible Care requirements. Nevertheless, the management system should be capable of matching requirements (e.g. Responsible Care Codes) with company programs, determining deficiencies and correcting. (The specific item here is a requirement to incorporate 'features which will minimize adverse effects on people, property and the environment which could remain or develop after closure, decommissioning or demolition' (OP4, Design and Construction of Facilities and Equipment)).

The second involves the company's Social Responsibility Policy which is managed via element 4 of its corporate management system twelve elements. Our observation was that the local Fort Nelson community is largely uninvolved in any economic activity concerning drilling operations (although much of the gas operations economic activities are sourced locally). According to the company's management system model, discovery and self-healing should have caught and corrected any non-conformances before they became community issues.

We believe that although the model Plan-Do-Check-Act (presented to us from the NAGTO HSE&SR Portal) incorporates the features necessary for discovery and self-healing nevertheless they were found missing in these two instances. We don't have specific evidence but perhaps there are inconsistencies on how element (or standard) owners include Responsible Care code items, on how they ensure there has been no slippage in the intent of the codes and on how they self-assess the management systems to determine compliance. Further, we believe it is the prerogative of the overall management system to hold each of the element (or standard) owners accountable for conformance to Responsible Care (and other) requirements.

Since the company is transitioning to a Responsible Care Management System for all company businesses the team feels it is a good opportunity to review the CIAC Management System Manual guidelines as the new system is developed and implemented.

Those guidelines suggest that the overall management system should be a dynamic thing rather than just a framework outlining the necessary components. The system should have a discernible owner (individual or team) and mechanisms to continually assess the performance of the system (the right elements, the right structure etc.) and performance by the system (are all of our sub-systems self-healing, is this system self-healing and, overall, does the system we've put in place allow us to achieve our company Responsible Care goals).

One of the suggested documents in the 'Do' section of the above guidelines is a cross reference document that clearly indicates where compliance with code elements may be found. Nexen's version of this (RC Gap.xlsx) should be maintained.

Improvement Opportunities

- Consider using the Chemistry Industry Association of Canada (CIAC) Management System Manual as a template for developing, documenting and implementing the new company management system (i.e. use the management system to implement the management system). Ensure the existing cross reference between company standards (etc.) and the codes is maintained at a detail sufficient to determine there is no slippage.
- Recognize that it is the purview of the upper level Management System to hold all sub-structures (anything (group, element, standard) that has been defined by the Management System) accountable for ensuring their systems have fully implemented all codes and are capable of discovery and self-healing. (Reference the design area where there are no specific references to a specific code element and to team observations related to Social Responsibility.)

3.1 Observations on the PLAN Step

During the PLAN Step of the management system, the company decides what the goals of the company are 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 Nexen's management system, the verification team observed that the company meets all Responsible Care implementation expectations.

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 Nexen's management system, the verification team observed the following:

As has been mentioned several times in this report the company is transitioning to a uniform Responsible Care Management System across all company businesses. Care should be taken to ensure resulting systems are Responsible Care compliant (see 3.0 Observations on the Company Management System, second improvement bullet, above)

The '12 Elements' contained in the HSE&SR Management System is a comprehensive collection of Responsible Care (and other) requirements. Several activities are underway that will strengthen the content of this collection including reworking the cross reference and completing standards under

development and the process currently used to identify and approve Responsible Care standards stands out.

Works in Progress

- Completing the full approval and implementation of standards currently identified for development.

Successful Practice

- The electronic workflow process in the company's online system referred to as "Livelink" which is used to review and approve new Divisional Standards, which ensures understanding and acceptance by the users, prior to their implementation.

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 Nexen's management system, the verification team observed that the company meets all Responsible Care implementation expectations.

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 need 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 and corrected, etc.

In considering the ACT Step of Nexen's management system, the verification team observed that the company meets all Responsible Care implementation expectations.

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 are 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 Nexen's 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 verification team’s related observations on the company’s application of the Responsible Care Ethic and Principles for Sustainability are as follows:

The team was shown a card produced by the company that contained the Responsible Care Ethic and Principles of Sustainability wording with certain of the words highlighted for effect. We felt this was a clever way of highlighting important concepts that could result in greater employee retention.

We also learned that the company brought hourly employees together off-site with the purpose of developing an Operator Code of Ethics. This was an extremely novel and by most accounts an extremely successful endeavour.

Successful Practices

- Responsible Care Ethic and Principles of Sustainability card with highlighted wording.
- The Operator Code of Ethics developed in a similar format to the CIAC Responsible Care Ethic & Principles for Sustainability.

The Responsible Care Ethic & Principles for Sustainability

- work for the improvement of people’s lives and the environment, while striving to do no harm;
 - Positioning of the sites and roads, etc.
 - Reseeding and replanting before normally expected.
 - Water containment on sites (syncing water collection to annual flows - not yet perfect and are still learning lessons)
 - Ongoing work with brackish water.
 - Membrane technology for CO₂ removal.
 - Work on bi-fuels (diesel and natural gas).
 - Maintaining funding for caribou research.
 - BAR - continuing abandonment effort during downturn.
 - Sulphur recycling (at BAR) going into Agro fertilizer.
 - HPIP at Balzac - makes cogen more efficient (and less CO₂).
 - Growth of Responsible Care at Nexen into all business units.
 - Collaboration with first nations - e.g. culturally important trees (bark used for clothing, hollowed out for canoes, etc.) plan to work around groves.
- 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;
 - Comprehensive suite of standards and guidelines for community involvement including:
 - Activity Planning Sheets.
 - Annual Communication and Consultation Plans.
 - Community Investments.
 - Community Involvement Plan (standard).
 - Community Research and Characterization (standard).
 - In-house Training Standard.
 - Key Stakeholder Meetings Standard.
 - Lifecycle Matrix Standard.
 - Municipal Update Standard.

- Open House Standard
 - Stakeholder Database Standard.
 - Stakeholder Grid Standard.
 - Company community newsletters, brochures etc.:
 - Community Matters.
 - Public Flaring Notice.
 - Shale Oil Gas Fact Sheet.
- take preventative action to protect health and the environment;
 - The 12 elements of the Responsible Care Management System.
 - Hazard and Risk Registry matrix.
 - Use of leading indicators.
 - Journey Management System.
 - Local self-inspection program for PSM procedures.
 - NEBC water management.
 - Partner with others in industry to develop water management strategies.
 - Using brackish aquifer water in high pressure fracturing operations.
 - Boreal caribou management.
- innovate for safer products and processes that conserve resources and provide enhanced value;
 - NEBC water management.
 - Partner with others in industry to develop water management strategies.
 - Using brackish aquifer water in high pressure fracturing operations
 - Boreal caribou management.
 - Membrane technology for CO₂ removal.
 - Work on bi-fuels (diesel and natural gas).
- engage with our business partners to ensure the stewardship and security of our products, services and raw materials throughout their life-cycles;
 - NEBC Area Operating Committee.
- understand and meet expectations for social responsibility;
 - Social Responsibility policy and standards.
 - \$75,000 donations to Fort Nelson programs in 2012.
 - Partnering with INPEX in donating \$65,000 for a community bus for the Northern Rockies Senior Society.
 - Local NEBC operations sourcing much of its economic activity through local suppliers (work needs to be done with respect to drilling activity).
- 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;
 - Alberta Biodiversity Monitoring Institute (ABMI).
 - CAPP Responsible Canadian Energy Program.
 - Carbon Disclosure Project.
 - Clean Gulf Associates (US).
 - Canada's Oil Sands Innovation Alliance (COSIA).
 - Chemistry Industry Association of Canada.
 - Cumulative Environmental Management Association (CEMA).
 - Horn River Basin Producers Group.
 - International Association of Oil & Gas Producers
 - International Petroleum Industry Environmental Conservation Association (IPIECA).
 - London Benchmarking Group (LBG) Canada.
 - Oil & Gas UK.
 - Oil Sands Leadership Initiative.
 - Oil Sands Developers Group (OSDG).

- Oil Spill Prevention and Response Advisory Group (OSPRAG).
- Offshore Operators Committee.
- Petroleum Technology Alliance Canada (PTAC).
- Regional Aquatics Monitoring Program (RAMP).
- Responsible Care®.
- SERPENT.
- Step Change in Safety.
- United Nations Global Compact.
- World Petroleum Council.
- Wood Buffalo Environmental Association (WBEA).

promote awareness of Responsible Care, and inspire others to commit to these principles.

- Have company standards relating to the Promotion of Responsible Care by Name.

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 range of opportunities identified during the verification and discussed in detail in the report.

The verification is complete and no further involvement is required by the verification team.

Company Response to Verification Team Report

Nexen 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. Our progress in implementing any plans resulting from this report 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.

Juline Curran
HSE – Strategic Planning & Responsible Care Analyst
Nexen Energy ULC
August 22, 2016

Interview Lists

A: Company Personnel Contacted During Verification Process

Name	Position	Location
Blaine Sebry	GM – Canada Production Operations	Calgary
Brock Johnson	Sr Manager - Engineering, Operations, Shale Gas, Cdn Ops - LNG - Prod Eng	Calgary
Gerry Anderson	Sr Manager - A&R & Power Station, Balzac, Cdn Ops - LNG	Balzac
Brent Jessiman	GM – Health, Safety, Environment & Emergency Management, Cdn Ops	Calgary
Shawn Williams	Sr Scientist - Environment	Calgary
Dale Dechief	Sr Manager - Projects, Shale Gas, Cdn Ops - LNG - Prod Eng	Calgary
Keith Serre	Team Lead - Process Safety Engineering	Calgary
Bob Cargill	Sr Technologist - PSM Assurance, HSE - Assurance Measures & Reporting	by phone
Mark McCutcheon	Manager - Automation & Controls, Shale Gas, Cdn Ops - LNG - Shale Gas - Prod Eng	Calgary
Warren Korol	Sr Project Manager - E&C, Project Delivery, Ops Services - E&C - Program Integration & Project Delivery	Calgary
Doug Wallace	Rotating Equipment Advisor - Production, Shale Gas, Cdn Ops - LNG - Automation & Controls	Calgary
Brian Kienitz	Project Manager - E&C, Construction, Ops Services - E&C - Program Integration & Project Delivery	Calgary
Stefan Merkle	Operations Manager, Operations, Shale Gas, Cdn Ops - LNG - Shale Gas Production	by phone
Bruce Bunting	Coordinator HSE & ERP, Assurance and Sustainability, Canadian Operations	by phone
Tim Kowbel	Team Lead - Health Safety & Emergency Response, LNG, HSE - Cdn Operations	Calgary
Nyssa Carruthers	Supervisor - Emergency Management, HSE - Cdn Operations	Calgary
Brian Ross	Sr Engineer - Environment, HSE - AM&R - MS & Assurance	by phone
Robert Ge	Engineer - Environment, Waste, HSE - AM&R - MS & Assurance	Calgary
Tom Rudd	Team Lead - Marketing, Gas & Power Operation, Energy Marketing- Natural Gas & Power Marketing	Calgary
Mike Metz	Sr Manager - Balzac Power Station, Cdn Ops - LNG - Balzac Power	Balzac
Greg Denham	Manager - A&R, Balzac, Cdn Ops - LNG - Balzac Power	Balzac
Amy Cooper	Administrative Assistant, Cdn Ops - LNG - Abandonment & Reclamation	Balzac
Joanne James	Administrative Assistant, Cdn Ops - LNG - Balzac Power Station	Balzac
Todd Jorgensen-Nelson	Coordinator - Environment, Balzac, Cdn Ops - LNG - Abandonment & Reclamation	Balzac
Mike Ferris	CW- HS&ER Advisor, HSE - HS&ER Cdn Ops	Balzac

Claire Serdula	Sr Engineer - Environment, Balzac, HSE - Environment, LNG	Balzac
Lawrence Tulissi	CW - PM-Remediation and Reclamation, HSE - Environment, LNG	Balzac
Boby James	Lead Plant Operator, Cdn Ops - LNG - Balzac Power Station	Balzac
Dan Kelly	Superintendent - Maintenance, Balzac Power Station, Cdn Ops - LNG - Balzac Power Station	Balzac
Mike Mitchell	Superintendent - Production, Shale Gas, Cdn Ops - LNG - Prod Eng	Fort Nelson/Dilly Creek
Mark McIntyre	Operator D-Etsho, Cdn Ops - LNG - Shale Gas Production	Fort Nelson/Dilly Creek
Cam Foss	Operations Manager, Operations, Shale Gas, Cdn Ops - LNG - Shale Gas Production	Fort Nelson/Dilly Creek
Nathan Meier	Coordinator - HSE, NEBC, HSE - HS&ER Cdn Ops	..by phone
David Linsley	Coordinator - HSE, NEBC, HSE - HS&ER Cdn Ops	Fort Nelson/Dilly Creek
Curtis Salzl	Superintendent - Maintenance, Shale Gas, Cdn Ops - LNG - Prod Eng	Fort Nelson/Dilly Creek
Michelle Rakoczy	Supervisor - NEBC, Administration, Cdn Ops - LNG - Shale Gas Production	Fort Nelson/Dilly Creek
Mark Futrell	Coordinator - Process Safety Mgmt, HSE - PSM - NEBC/BPS/E&C	Fort Nelson/Dilly Creek
Tony Knuttila	Superintendent - Production, Shale Gas, Cdn Ops - LNG - Shale Gas Production	Fort Nelson/Dilly Creek
Murray Schmidt	Sr Manager - Asset Integrity & Reliability, Shale Gas, Cdn Ops - LNG - Shale Gas - Prod Eng	Calgary

B: External Stakeholders Contacted During Verification Process

Fort Nelson

Val Keeler	Lamplighter President, MHAAC Secretary, Refuge Society V. Chair, Fort Nelson Literary Society Pres.
Bill Streeper	Mayor, Northern Rockies Regional Municipality (NRRM), British Columbia
Danielle Morine	NRRM – Recreation
Diana Samchuk	School District #81
Carol Seidel	Northern Rockies Seniors Society Volunteer, Radar Road Transport Ltd.

Lorraine Gerwing	NRRM Councilor, NR Children & Family Action Committee Coordinator
Lana Lowe	Fort Nelson First Nation
Gord McCleary	NRRM Emergency Services / Fire

Balzac

Diana Festigo	Legacy Place Society
Ruanna & Larry Jones	Landowners
Paul Leong	The City of Calgary
John Church	Landowner
Ken Young	Landowner
Wayne Shuttleworth	Landowner
Dawe Downs	AMAS
Wilf Stark	Balzac Community Hall Board Member
Gordon Jackson	St. Clement's Anglican Church
E. Michael Holley	St. Clement's Anglican Church



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