

Environment and Sustainable Resource Development—Natural Resources Conservation Board—Confined Feeding Operations Follow Up

SUMMARY

Confined feeding operations (CFOs) are enclosed areas where operators confine livestock for the purpose of growing, finishing or breeding them. The *Agricultural Operation Practices Act*¹ and its regulations set out legislative requirements for CFOs to operate in an environmentally sustainable way. Alberta has about 2,000 CFOs.

The Natural Resources Conservation Board assumed responsibility for administering the Act in 2002. Before 2002, municipalities regulated CFOs under municipal requirements. Over half of Alberta's CFOs were built before 2002. These CFOs are deemed to have a permit under the Act and do not have to upgrade their facilities to meet its requirements unless the facility poses a risk to the environment, as determined by NRCB.

NRCB enforces CFOs' compliance with the Act through permitting and compliance monitoring processes. NRCB follows different processes for managing groundwater² and surface water³ risks. While NRCB evaluates both groundwater and surface water risks before allowing new and expanding CFOs to operate, its compliance monitoring of existing CFOs has focused on groundwater risk. NRCB relies primarily on complaints to identify surface water risks.

What we examined

We followed up on recommendations from our previous audits of NRCB's monitoring of CFOs. In 2004, we recommended that NRCB rank its compliance and enforcement activities based on environmental risk, and manage odour and nuisance complaints more efficiently. In our 2007 follow-up audit, we concluded that NRCB had implemented the odour and nuisance complaints part of the recommendation. We repeated the compliance and enforcement part of the recommendation.

In our 2011 follow-up, we concluded that NRCB had made significant progress with implementing the recommendation but still needed to take additional steps to fully implement it. We also found that NRCB had interpreted our 2004 recommendation (repeated in 2007) as being solely for groundwater. In fact, we had intended this recommendation to cover both groundwater and surface water. Therefore, we made a new recommendation that NRCB should assess whether its current compliance approach is adequate in proactively managing surface water risks.

¹ Chapter A-7, RSA 2000

² Groundwater is water located beneath the earth's surface in soil pore spaces and in the fractures of rock formations.

³ Surface water is water collecting on the ground or in a stream, river, lake, wetland or ocean.

What we found

Groundwater

NRCB made satisfactory progress but has not fully implemented this recommendation. We found that NRCB established a risk-based approach to monitoring conditions at CFOs that pose a higher risk to groundwater. However, NRCB had not documented its internal guidelines or required procedures for leak detection and water well monitoring programs. As a result, NRCB's monitoring activities were not always timely and key actions and decisions were not always documented.

After our audit, NRCB issued an internal directive—which took effect in May 2013—that describes its requirements for the timing and documentation of actions staff take to monitor groundwater and respond to complaints. We were unable to test the implementation of the directive or the effectiveness of NRCB's processes to monitor internal compliance because we completed our audit before the directive went into effect.

Surface water

NRCB made satisfactory progress but has not fully implemented this recommendation. We found that NRCB has adequate procedures to ensure operators build new facilities, and expand or modify existing facilities, in a manner that does not pose a risk to surface water. After our audit, NRCB completed an action plan for how it will collect and analyze surface water data, to assess whether its current surface water approach is appropriate. We were unable to test the implementation of the plan because the completion of the first milestone—review and analysis of collected surface water data—is scheduled for the spring of 2014.

What remains to be done

To fully implement the recommendations, NRCB needs to do the following:

Groundwater

Implement a process to effectively monitor internal compliance with NRCB's:

- policy for risk-based compliance⁴
- directive for leak detection, water well reporting and risk-based compliance programs, and for responding to complaints

Surface water

Demonstrate reasonable progress in implementing its surface water plan by evaluating the collected data and assessing whether its current surface water approach is working.

Implement a process to effectively monitor internal compliance with its data collection requirements in the surface water plan.

Why this is important to Albertans

Livestock manure can contaminate groundwater and surface water. The *Agricultural Operation Practices Act* sets out standards for CFOs to operate in an environmentally sound manner. NRCB is responsible for monitoring and enforcing CFO operators' compliance with the Act, to ensure they do not harm the environment.

⁴ The risk-based compliance program includes CFOs that were built before 2002, have earthen manure storage and are located in high groundwater vulnerability areas. These CFOs pose the highest risk to groundwater.

This is our third follow-up audit of NRCB's oversight of CFOs. We follow up on all our audits—typically within three years—and publicly report management's progress toward implementing our recommendations.

AUDIT OBJECTIVE AND SCOPE

Our objective was to determine if NRCB has implemented our two outstanding recommendations. To do so, we assessed whether its actions met our audit criteria. We set out to conclude on whether NRCB has:

- implemented the necessary processes to take compliance and enforcement action at CFOs that pose a risk to groundwater
- demonstrated that its compliance approach to managing surface water risks is adequate

In performing the audit, we:

- interviewed management and staff
- reviewed applicable internal and publicly available documentation, including applicable legislation
- examined samples of operator files

We conducted our field work from November 2012 to March 2013. We substantially completed our audit on March 29, 2013. We conducted our audit in accordance with the *Auditor General Act* and the standards for assurance engagements set by the Canadian Institute of Chartered Accountants.

FINDINGS AND RECOMMENDATIONS

Groundwater risks: Rank compliance and enforcement activities based on risk—satisfactory progress

Background

In 2011 we concluded that NRCB made significant progress in meeting our 2007 recommendation that it rank compliance and enforcement activities based on environmental risk.⁵ NRCB still needed to take additional steps to fully implement our recommendation.

Since our first follow-up audit in 2007, NRCB has implemented an environmental risk screening tool, leak detection monitoring and risk-based compliance programs. These initiatives allowed NRCB to focus its compliance and enforcement activities on areas with higher environmental risk.

CFO operators with leak detection monitoring conditions in their permits must maintain a leak detection system for their liquid manure storage facilities and submit monitoring results to NRCB. From 2007 and 2011, NRCB assessed environmental risk at all the facilities with leak detection monitoring requirements in their permits. Many of these operations were grandfathered⁶ and it was unclear whether the site-specific groundwater conditions warranted monitoring. NRCB concluded that continued leak detection monitoring was justified at 50 of the 260 operations, and amended their permits as needed.

The risk-based compliance program assesses risk to water quality at CFOs that were built before 2002, have earthen manure storage and are located in high groundwater vulnerability areas. At the end of 2012, NRCB completed environmental risk assessments at 50 of the 170 operations that met these

⁵ *Report of the Auditor General of Alberta—April 2011*, page 55.

⁶ Grandfathered CFOs existed before 2002, when NRCB began administering the *Agricultural Operation Practices Act*. Pre-2002 operations are deemed to have a permit under the Act and do not have to upgrade facilities to meet its requirements unless the facility poses a risk to the environment, as determined by NRCB. NRCB can investigate any risk to the environment, enforce terms and conditions in existing permits or require actions to be taken to mitigate the risk.

criteria, and is now determining the changes, if any, required for their permits. NRCB planned to perform the remaining assessments at a rate of 25 CFOs annually. NRCB policy states that it will annually re-inspect 100 per cent of high risk, 30 per cent of medium risk and 10 per cent of low risk operations, to ensure that there are no changes to the operations that would warrant amendments to monitoring or their permits.

The Act requires annual sampling of water wells and submission of water analysis results from CFOs that have a water well within 100 metres of a manure storage or collection facility. Two hundred CFOs have water well monitoring requirements in their permits.

NRCB analyzes the leak detection and water well testing results to determine whether leaks from manure storage and collection facilities are having a negative effect on groundwater quality.

Operators must comply with requirements specified in their permits. NRCB's compliance and enforcement policy states that inspectors can be flexible in how they respond to non-compliance, particularly where the risk to the environment is low. Management noted that NRCB inspectors afford considerable patience to operators who are facing regulatory issues for the first time, particularly when the operation is a family farm that does not have environmental or regulatory structures in place.

NRCB maintains a database and a paper file system to store information on its permit and compliance activities. NRCB also maintains tracking spreadsheets to monitor the progress of the risk-based compliance program and to report on the program results to the board.

Criteria: the standards for our audit

To fully implement our 2011 recommendation, NRCB needed to:

- monitor and enforce operators' compliance with its groundwater monitoring and reporting requirements
- complete the first round of assessments planned for potentially high risk CFOs
- develop a system to periodically follow up on the potentially high risk CFOs.

NRCB also needed to ensure that its own inspectors complied with NRCB's policy and processes for monitoring operators' compliance with the terms of their permit.

Our audit findings

KEY FINDINGS

- NRCB needs to strengthen its internal controls to ensure its groundwater monitoring actions are timely and documented, and comply with its policy.
- New policy was implemented in May 2013.
- NRCB was on track in completing environmental risk assessments for CFOs with high risk to groundwater.

Leak detection and water well monitoring programs

NRCB uses a risk-based approach to monitoring conditions at CFOs that pose a high risk to groundwater. At the time of our audit, NRCB had no documented internal guidelines describing procedures NRCB staff must follow for leak detection and water well monitoring programs. As a result, staff did not always take timely action or document their monitoring activities and decisions. NRCB's internal controls did not detect these lapses.

During our audit, management stated that they believe NRCB inspectors worked with the operators to achieve compliance, even though they did not always document their follow-up actions or decisions in

NRCB's database. Management told us that they reviewed exception reports every two months, to identify operator non-compliance and confirm that NRCB inspectors are taking the appropriate action. We could not verify the existence or operating effectiveness of this control because management did not document their work.

Our testing found that some operators had failed to meet the groundwater monitoring and reporting conditions specified in their permits. In each of those cases, we found that NRCB inspectors worked with the operators to achieve compliance with their permits. However, they did not always document their follow-up actions or decisions in NRCB's database. Nor did NRCB staff always document other pertinent data. Key data were missing from the database and, in some cases, from operator paper files. For example, operator-submitted groundwater monitoring reports, NRCB analyses of the results and NRCB compliance activities were not documented.

NRCB did not always evaluate and follow up on operator groundwater monitoring results on a timely basis. We found two instances where NRCB took 11 months to complete full analysis of the groundwater monitoring reports. In one of these delayed cases, NRCB analysis detected potential lagoon leakage that required further follow-up at the operator's site. We also found two cases where NRCB did not complete the analysis of the groundwater monitoring results.

After our audit, NRCB issued an internal directive that describes its requirements for the timing and documentation of actions staff must take to monitor groundwater and respond to complaints. This directive took effect in May 2013. It sets a two-month timeframe for analysis of monitoring results. We were unable to test its implementation or the effectiveness of NRCB's processes to monitor internal compliance because we completed our audit before the directive went into effect.

Risk-based compliance program

NRCB implemented a process for assessing and monitoring environmental risk at pre-2002 CFOs that pose potentially high risk to groundwater. In August 2012, NRCB issued a policy that documented its process and required procedures.

NRCB did not have effective internal controls to ensure internal compliance with its policy for re-inspections. A quality assurance process introduced in NRCB's new directive for groundwater monitoring requires a compliance review, on a sample basis, of initial risk assessments, but does not mention re-inspections.

Our testing found that NRCB did not meet its target to annually re-inspect all the sites it had assessed as high risk to groundwater during the initial risk assessment. It did not re-inspect one of the five high risk sites. NRCB met its re-inspection target for medium and low risk CFOs: 30 per cent of medium risk and 10 per cent of low risk facilities. However, it had no defined approach to selecting medium and low risk facilities for re-inspection. Data in the spreadsheets management used to track inspection results was not up to date.

Management had reviewed the contents of each completed paper file we tested, for compliance with NRCB's policy. However, the checklist management used to document the review did not include key policy requirements such as documentation of surface water risks or the completeness and accuracy of data entry into the database.

NRCB did not have a defined process to ensure it would appropriately assess for risk all CFOs identified as potentially high risk to groundwater. As a result, these CFOs might not undergo the risk assessment NRCB designed for these sites.

Our testing found that NRCB had completed a risk assessment using the environmental risk screening tool for all facilities we tested. NRCB was on track in completing initial risk assessments at a target rate of 25 CFOs annually.

Complaint responses

NRCB did not have adequate internal controls to ensure consistent and transparent documentation of complaints. NRCB staff did not consistently or, in our view, appropriately categorize all water related complaints. Appropriate categorization of complaints is important because NRCB tracks and publicly reports—by complaint type—on the number of operations involved in complaints. Management uses this data as one of the indicators of their success in managing environmental risks.

What remains to be done

To fully implement the recommendation, NRCB needs to implement a process to effectively monitor internal compliance with NRCB's policy for risk-based compliance, and its directive for leak detection, water well reporting and risk-based compliance programs, and for responding to complaints.

Surface water risks—satisfactory progress

Background

In 2011 we recommended that NRCB demonstrate that its compliance approach is adequate to proactively manage surface water risks.⁷ We specifically wanted NRCB to demonstrate how its complaints-based approach to compliance was working to mitigate all significant surface water risks from CFOs.

In June 2012, NRCB proposed to enhance its approach to managing surface water risks through the following actions:

- Document surface water observations during site visits done in response to complaints or to monitor operator compliance with groundwater monitoring requirements. Use data collected over time to assess whether the current approach is appropriate.
- Continue to enhance its knowledge of surface water conditions at large beef operations.⁸
- Inform operators of their duty under the *Environmental Protection and Enhancement Act* to report any actual or potential substance release.
- Consult with the Ministry of Agriculture, Food and Rural Development on whether the Act should be amended to clarify operator release reporting requirements.

Criteria: the standards for our audit

NRCB's risk-based approach to groundwater monitoring should incorporate the following elements into its permitting and post-construction compliance monitoring processes.

Permitting

- Assess surface water risks, before issuing permits, by evaluating each facility's potential impact on surface water from site location, geological conditions and storage design specifications, and land base available for manure spreading.
- Verify that facility construction complies with the surface water requirements in its permit.
- Conduct site inspection before issuing permits, and again before the operation starts.

⁷ *Report of the Auditor General of Alberta—April 2011*, page 59.

⁸ NRCB stated that large beef operations pose a higher risk to surface water than operations with poultry, hog and dairy livestock.

Post-construction compliance monitoring

- Use follow-up inspections on surface water complaints to ensure compliance with legislation.
- Follow up on issues identified during inspections.
- Determine and take compliance and enforcement action, when appropriate, to correct surface water issues.
- Collect and evaluate surface water data from permitting and compliance monitoring activities to determine whether the current approach is adequate in proactively managing surface water risks.

Our audit findings**KEY FINDINGS**

- NRCB developed a plan to determine whether its current approach for managing surface water risks is appropriate. First milestone will be completed in the spring of 2014.
- NRCB has adequate processes for assessing surface water risks at new and expanding facilities.

For all samples we tested, NRCB:

- assessed surface water risks before permitting operators to build facilities
- verified, upon construction completion, that operators complied with permit requirements set to ensure surface water risks are appropriately managed before operations begin.

In mid-2012, NRCB introduced a checklist to document surface water observations at CFOs. NRCB staff did not consistently use the checklist when visiting sites in response to the water related complaints we tested. NRCB stated that this was due to management's decision that surface water data collection would be more efficient if staff use NRCB's existing forms instead of the checklist. This took effect in May 2013.

In April 2013, NRCB completed a plan for collecting and analyzing surface water data from permitting and compliance monitoring activities to assess whether its current surface water approach is appropriate. We were unable to test the implementation of the plan because completion of the first milestone—analysis and evaluation of collected surface water data—is scheduled for the spring of 2014.

What remains to be done

To fully implement this recommendation, NRCB needs to:

- demonstrate reasonable progress in implementing its surface water plan by evaluating—in the spring of 2014—the collected data, and assessing whether its current surface water approach is working
- implement a process to effectively monitor internal compliance with the data collection requirements in the surface water plan.