NRCB | Natural Resources Conservation Board

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ENFORCEMENT ORDER NO 14-01

AGRICULTURAL OPERATION PRACTICES ACT

REVISED STATUTES OF ALBERTA 2000 CHAPTER A-7

Date Issued: May 6, 2014

Issued by: Lynn Stewart, Inspector, Field Services Division, Natural Resources Conservation Board (NRCB), Red Deer

Issued to: Thorlakson Feedyards Inc., Box 3490, Airdrie, AB T4B 2B7

Ben Thorlakson (Owner)

Milt Scott (Manager)

This is an order with respect to manure runoff from a cattle feedlot located at NE 20-27-28 W4M, and adjacent quarter sections to which manure from the feedlot is applied. These quarter sections are located in Rocky View County, Alberta.

The feedlot is a "confined feeding operation" (CFO) under section 1(b.6) of the *Agricultural Operation Practices Act* (AOPA). As the CFO existed prior to January 1, 2002, it is deemed to be "grandfathered" under section 18.1 of the act. However, the NRCB has not determined the CFO's deemed (i.e. grandfathered) capacity.

As explained in the reasons below, manure runoff from the CFO, and the land application of manure, have created and are continuing to create a risk to the environment, due to:

- manure overflow from the catch basins (Map 1, "A" and "B") which is due, in turn, to the catch basins' inadequate storage capacity;
- a breach in the berm on the east side of NE 20-27-28 W4 on the East Coulee (Map 1, "E");
- inadequate piping and manure application infrastructure on SW 28-27-25 W4 (Map 1, "C");
- manure-contaminated runoff leaving SW 28-27-25 W4.

This order is being issued to remedy the the ongoing environmental risk. The order takes effect on the issuance date noted above.

ORDER:

Pursuant to section 39(1) of AOPA, you shall take all necessary and appropriate measures to prevent manure runoff from the catch basins and from the CFO site in general, and to ensure that liquid manure from the catch basins is properly applied. In particular, you shall:

1. Remove the contents of each of the existing catch basins when the level of each basin is higher than 0.5 m from the bottom of the basin. The removed catch basin contents shall be applied to land pursuant to the terms of this order and in compliance with AOPA.

   Notwithstanding the first sentence above, the catch basin contents shall not be removed during rainfall events, if they will be applied to SW 28-27-25 W4M, or at other times when the removal would cause the contents to be land applied in a manner that would violate AOPA.

2. By May 20, 2014, provide the NRCB with a written plan detailing how they will ensure that they have sufficient catch basin capacity to retain runoff from the CFO site from a one day (24 hour) rainfall that has a one in 30 year probability. This plan is subject to the following conditions:

   a. All construction proposed in the plan must be completed by October 31, 2014.
   b. If the plan includes the construction of new and/or expanded catch basins, an authorization is required under AOPA. You must submit to the NRCB a completed part 1 and part 2 application, by May 20, 2014 and July 21, 2014, respectively, for the authorization.[1] If you believe that you will be unable to meet these deadlines, you shall notify the NRCB as soon as you reach this conclusion.
   c. If the plan includes decommissioning of pens, or any other changes to the existing footprint of the site, NRCB authorization may be required for those changes. The NRCB will assess whether an authorization is needed after reviewing your plan. Under no circumstances shall decommissioning or changes to the footprint commence prior to the NRCB's acceptance of your plan and issuance of any needed authorization.

3. By August 11, 2014, provide the NRCB with a written plan for the removal and land application of manure contaminated runoff from the catch basins, in a manner that ensures compliance with AOPA requirements. The plan shall include:
   a. A determination of whether and how the existing catch basin discharge infrastructure (Map 1, "C") should be modified to work effectively in times of freezing and thawing.
   b. An identification of measures that should be taken to prevent leaks from the irrigation pipe system (Map 1, "C").

[1] The NRCB's enforcement of the above construction completion deadline, and of the plan's proposed construction generally, is contingent on the NRCB's issuance of any authorization or other permit under AOPA that is needed for any such construction. This order is without prejudice to the NRCB approval officer's consideration of the merits of any AOPA permit application.

c. An identification of specific quarter section land locations where the catch basin contents will be applied.
d. A list of measures needed to prevent the catch basin contents from running off the quarter sections identified in 4.c above. This list shall not include use of the emergency dam NE 28-27-28 W4 (Map 3, "H").
e. A list of the operating conditions or parameters that are needed to ensure that the measures listed in 4.d above comply with AOPA. These conditions or parameters should address, among other things, the rate of application and soil moisture conditions when the catch basin contents may be applied.
f. A commitment to conduct annual soil testing of the parameters specified in the Standards and Administration Regulation under AOPA.
g. A commitment to implement all the measures identified in the plan by April 1, 2015.

4. Maintain the integrity of all berms on NE 20-27-28 W4M, and reconstruct any damaged berms, to ensure that the berms prevent run on and runoff from the CFO site.

5. By October 1, 2014, provide the NRCB with an engineer or other qualified professional's report certifying that the existing berms are sufficient to prevent run on and runoff from the CFO site, and that future breaches of the berms are unlikely to occur. If the professional's certification is based on presumptions regarding ongoing maintenance practices, the report should describe those practices in detail.

   If the professional concludes that the existing berms are not sufficient, the professional's report should include recommendations on how the berms should be reconstructed or replaced to prevent run on and runoff from the site.

6. Comply with the plans required in clauses 2-3 above, after they have been approved by the NRCB in writing.

7. Immediately contact the NRCB if:
   a. The level of the catch basin contents is less than 0.5m from the upper edge of either catch basin;
   b. A breach of any berm is occurring or is imminent.

   For any contacts required under this clause, phone NRCB Inspector Lynn Stewart at the following numbers: 403-340-5358 (w); 403-506-9932 (m). If you cannot reach Ms. Stewart at either of these numbers, phone the NRCB's 24-hr toll free response line at 1-866-383-6722.

CONSEQUENCES OF NON-COMPLIANCE

Section 42(1) of AOPA states that, if the recipient of an enforcement order "fails to comply" with the order, the NRCB may apply to the Court of Queen's Bench for a judicial order "directing" the recipient to comply with the NRCB's order. Failure to abide by the conditions of this enforcement order may also result in further enforcement action, including court prosecution. In particular, if you do not expand your catch basin capacity sufficiently (i.e. to retain runoff from a one in 30 year rainfall) by the date in clause 2.a above, you may be required to immediately reduce your CFO footprint and livestock numbers to match the capacity of your existing catch basins.

RIGHT TO REQUEST A REVIEW

Under section 41 of AOPA, you have the right to request that the NRCB's board members (the "Board") conduct a review of this enforcement order. If the Board grants such a request, it may "review and confirm, vary, amend or rescind" the enforcement order. Under section 41(2), an enforcement order takes effect at the time prescribed in the order and its operation is not suspended by a request for review under that section.

If you wish to have the Board review this order, please submit a written request to Susan Whittaker, Manager, Board Reviews 4th Floor, Sterling Place, 9940-106 Street, Edmonton, Alberta T5K 2N2. AOPA does not provide a deadline for filing a request for the Board's review of an enforcement order. However, if you decide to request a Board review, the NRCB requests and recommends that you submit your request by May 7, 2014.In your request, you must clearly explain whether you want the Board to vary, amend or rescind the enforcement order and you must provide your reasons for the remedy you have requested. If you want the enforcement order suspended until the Board's review is completed, you must also include this suspension request in your written request for review, and provide your reasons for this request. If you have any questions about requesting a review or about the review process please call Susan Whittaker at (780) 422-1951.

ENFORCEMENT ORDER 14-01 – BACKGROUND AND FINDINGS

Thorlakson Feedyards is a "confined feeding operation" (CFO) that was constructed in 1970 under a municipal permit. Over the past several years, the CFO has fed approximately 16,000 to 20,000 head of cattle.(This is not a determination of the CFO's deemed—i.e. grandfathered—capacity.) While some of the manure is utilized in a composting facility adjacent to the feedlot, the majority of the solid manure is spread on crop land. The catch basin contents are spread on approximately 50 acres of land via an irrigation piping system (Map 3, "C") .

Since 2002, the NRCB has been responsible for enforcing the Agricultural Operations Practices Act, and ensuring compliance at CFOs. The NRCB has been addressing compliance issues with this CFO since 2003, as over 140 complaints have been reported. Inspectors have noted a number of serious

compliance issues relating to overflowing catch basins, runoff impacting surface water, runoff leaving their property, and improper manure application. As a result of some of these problems, to date the NRCB has issued one enforcement order (08-04) and one emergency order (14-01). In addition, NRCB inspectors have conducted roughly 114 site inspections and held countless meetings in an attempt to resolve the compliance issues through cooperative efforts. However, due to recurring manure runoff problems and clearly inadequate catch basin and piping and irrigation infrastructure, all of which are creating recurring risks to the environment, the more formal enforcement response reflected in this order is now required. These recurring runoff problems are noted below:

Catch Basin Overflows Due to Insufficient Capacity to Retain Runoff

The NRCB has noted that the catch basins on NE 20 (Map 1, "A" and "B") have overflowed several times in recent years (April 2011, May 2011, and June 2013), and on two separate occurrences in April, 2014. The first of these two most recent overflows (on April 7, 2014) prompted the NRCB's issuance of Emergency Order 14-01, which required the feedlot to immediately pump out the catch basins, prevent runoff from entering water bodies, and remove runoff from county property.

These overflows have not remained on site; rather they have flowed through ditches on road rights of way owned by Rockyview County, prior to crossing back onto other land owned by Thorlakson Feedyards. I have personally observed catch basin overflows running off onto Rockyview County ditches (Map 1, surrounding point "C") on at least two separate occasions, in June 2013 and April 2014. Under section 27 (1) of the Standards and Administration Regulation under AOPA, any application of catch basin contents that leaves the land to which it is applied is considered a risk to the environment. Logically, any overflow of catch basin contents directly onto county land is likewise an environmental risk.

In response to these catch basin overflow events, Thorlakson Feedyards has had to close the gates (with approval from Environment and Sustainable Resource Development) on the downstream side of the emergency dam on section 28 (Map 3, "H"), to prevent runoff from entering into an intermittent watercourse that crosses several sections of land.

These overflows have resulted in large part because the two catch basins at the CFO site lack the capacity needed to retain runoff from the CFO facilities. Under the Standards Regulation, new catch basins must be sized to have sufficient capacity (including a 0.5 m freeboard) to retain runoff from a 24 hour rainfall with a one in 30 year probability (hereinafter, a "1:30 year rainfall"). This capacity does not apply automatically to catch basins constructed under a municipal permit, but those catch basins are still required to prevent environmental risks and the 1:30 year rainfall capacity is a useful benchmark for assessing a catch basin's risk of overflow. Prior calculations showed that the Thorlakson Feedyars had sufficient capacity to retain runoff from a 1:30 year rainfall, but only if the operator's catch basin system included the "east coulee" (Map 1, "D").

However, in October 2009, Alberta Environment ordered Thorlakson Feedyards to decommission the east catch basin, because it was illegally located in a water course. With the loss of the east catch basin, Thorlakson Feedyard's capacity is at least 50% below that required to retain runoff from a 1:30 year rainfall (with a 0.5 metre freeboard). This calculated lack of capacity is further supported by at least 2 overflow events that have occurred since the closure of the east catch basin and that did not result from a rainfall event that was at or greater than a 1:30 year event.

While the evidence clearly demonstrates that the two catch basins together lack sufficient capacity to retain a 1:30 rainfall event, I am uncertain whether this capacity shortfall is the only cause of the basins' numerous overflows. The engineering report should address if freshwater spring discharge have changed since 2008, when Thorlakson Feedyards diverted springwater flows as per enforcement order 08-04.

To immediately address the environmental risks caused by these recurring overflows, clause 1 of this order requires Thorlakson Feedyards to remove the catch basin contents frequently enough in order to keep the basin levels low, in order to enhance the basins' ability to retain runoff from high spring rains and groundwater discharge. For the longer term, clause 2 of this order requires Thorlakson Feedyards to develop a plan to either increase their catch basin capacity to withstand runoff from the existing feedlot footprint, or reduce the existing feedlot footprint in order to reduce runoff to the existing catch basins. This clause includes tight deadlines to ensure that the plan is carried out by the early fall, so that Thorlakson Feedyards is in a position to avoid overflows in the spring of 2015.

Environmental risks from piping catch basin contents onto SW 28

Since 2006, NRCB staff have observed several occasions where catch basin contents were leaking from the irrigation pipes that connect the catch basins to the flood irrigation pipes on SW-28 (Map 1, "C"). According to the feedlot's manager Milt Scott, these leaks have resulted from poor connections that do not stay tight through expansion and contraction during freeze/thaw cycles. On June 3, 2013, I personally observed a leak causing a noticeable pooling of contents in the north ditch in the NW corner of NW-21. This ditch is on a right of way that is owned and maintained by the county. These leaks pose a risk to the environment because of their potential to leave Thorlakson Feedyards' own land. Because the pipes are part of a system for applying the catch basin contents to the operator's land, the leaks from these pipes is also a violation of section 27 of the Standards and Administration Regulation under AOPA, which prohibits the application of catch basin contents from "leaving the land to which they are applied...."

To remedy this ongoing risk, clause 3 of this order requires Thorlakson Feedyards to develop a plan that, among other things, determines whether and how these irrigation pipes can be modified to avoid further leakage. Under clause 6, Thorlakson Feedyards must carry out the plan after it has been approved by the NRCB in writing.

Environmental risks from applying the catch basin contents to the land surface through irrigation pumps

As noted above, Thorlakson Feedyard has been using a flood irrigation system to apply the manure contaminated catch basin contents to the SW 28. This practice has caused deep channeling throughout that quarter section. The channeling results in an uneven application of catch basin contents to the land surface which is an environmental risk because of the high nutrient loading in certain areas and inability of the crop to adequately uptake the nutrients. Besides causing an environmental risk, this nutrient loading could lead to a violation of the nutrient limits in section 25 of the Standards Regulation. This channeling also facilitates further runoff rather than forcing the catch basin contents to settle and seep into the soil surface. This runoff in turn increases the risk of runoff reaching the freshwater dam on Map 3, point "H". This dam is connected to an intermittent watercourse that crosses several sections of land. Besides causing an environmental risk, any runoff entering this watercourse would violate section 27 of the Standards Regulation which prohibits the application of catch basin contents that "ente[r] a common body of water....".

Further study is needed to evaluate the causes of this channeling and whether flood irrigation is still an appropriate means for Thorlakson Feedyards to apply its catch basin contents to land and, if so, what operating practices are needed to prevent further channeling . These studies and a resulting manure application plan are required in clause 3 of this order and Thorlakson Feedyards will be required to comply with the plan, once it is approved by the NRCB, under clause 6.

Berm Breaches

In 2008, the NRCB issued Enforcement Order 08-04 which required Thorlakson Feedyards to implement Envirowest Engineering's recommendations to ensure that fresh spring water did not comingle with manure contaminated runoff. The engineering firm reported in October, 2008 that Thorlakson Feedyards had taken sufficient steps to implement all of the engineer's recommendations, but noted that ongoing inspection and maintenance would be required to ensure the effectiveness of these steps.

Since then, on at least two separate occasions (June 2013 and April 2014), heavy runoff events have caused breaches of the berm on the east side of the CFO site on NE 20. The purpose of this berm is to prevent manure contaminated runoff from entering the "east coulee" (Map 1, "D") which flows eastward into an intermittent waterway. To their credit, Thorlakson Feedyards staff repaired the berm quickly after each of both breaches, but considerable manure contaminated runoff still flowed through the breaches before the berms could be repaired. Because of these breaches and the ongoing environmental risks that result, clause 4 of this order requires Thorlakson Feedyards to maintain the integrity of its berms and to reconstruct any damaged berms, to prevent further breaches. However, to ensure that the measures taken by the operator will be sufficient over the long term to prevent runoff, clause 5 of this order requires Thorlakson Feedyards to arrange for an engineer or other qualified professional to check the berms' integrity and adequacy and identify what measures are needed to properly maintain the berms. After reviewing the engineer's findings, the NRCB may require Thorlakson

Feedyards to construct additional runoff controls and/or to adopt further measures to maintain the integrity of berms.

Summary

The NRCB has a long history with Thorlakson Feedyards since 2002, addressing many AOPA compliance issues and risks to the environment. The operator has made considerable effort over the years to prevent these problems, and those efforts appeared at the time to be sufficient. However, new developments since those efforts (e.g. closure of the east catch basin) and recent events—overflows, pipe leakage, berm breaches, and surface channeling of applied manure—make it clear that further action is required. Strict timelines for the identification and implementation of required measures are needed to ensure that these issues are addressed this construction season.

The plans required by this order will be enforceable under this order once they are approved by the NRCB in writing. Note however that the NRCB may carry forward some or all of the plan requirements into a new AOPA permit so that these requirements are enforceable as permit conditions that will remain in effect once the order itself is revoked.

Lynn Stewart

Lynn Stewart

Inspector, Field Services Division

Natural Resources Conservation Board

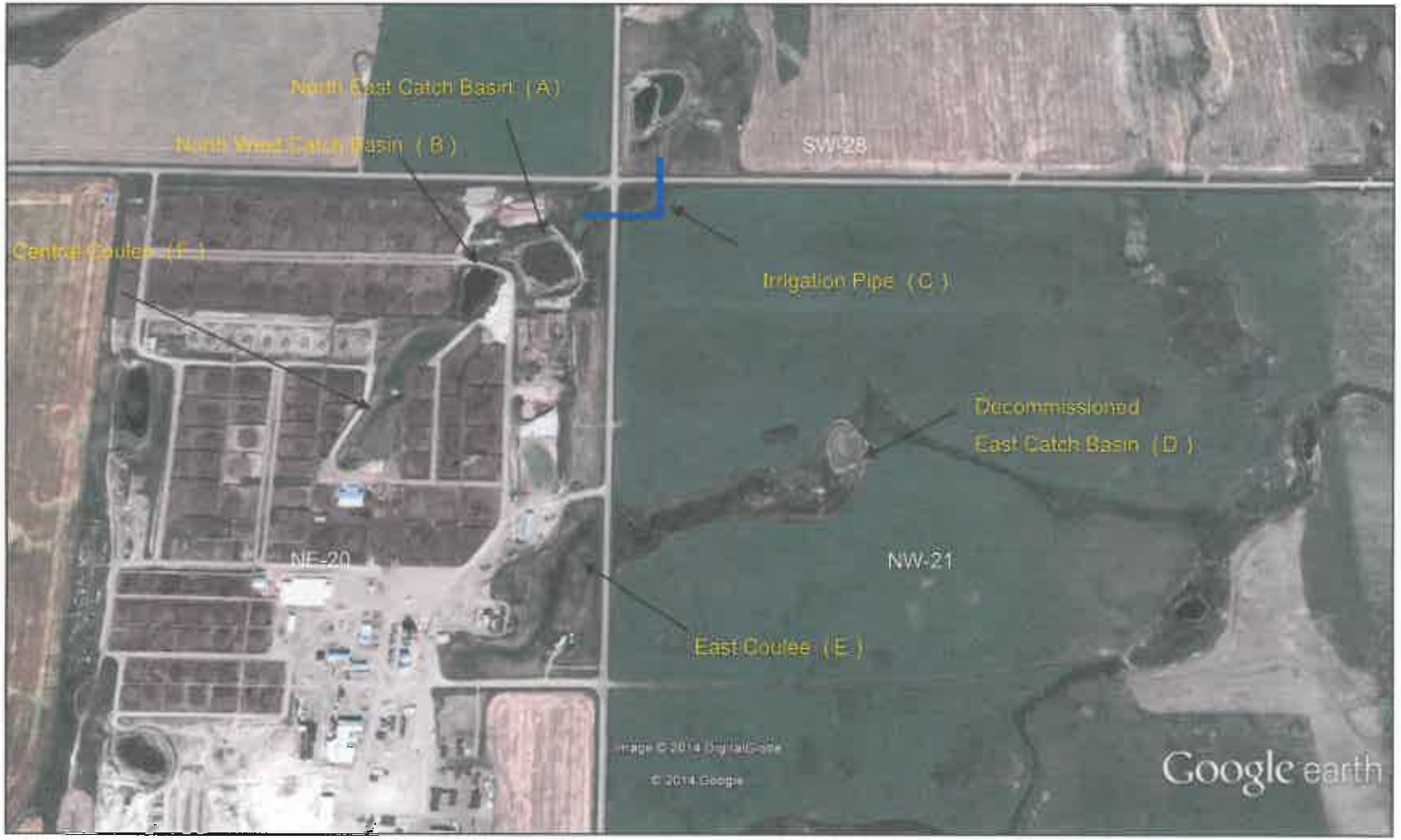
SERVICE OF ORDER:

Delivered to: Milt Scott

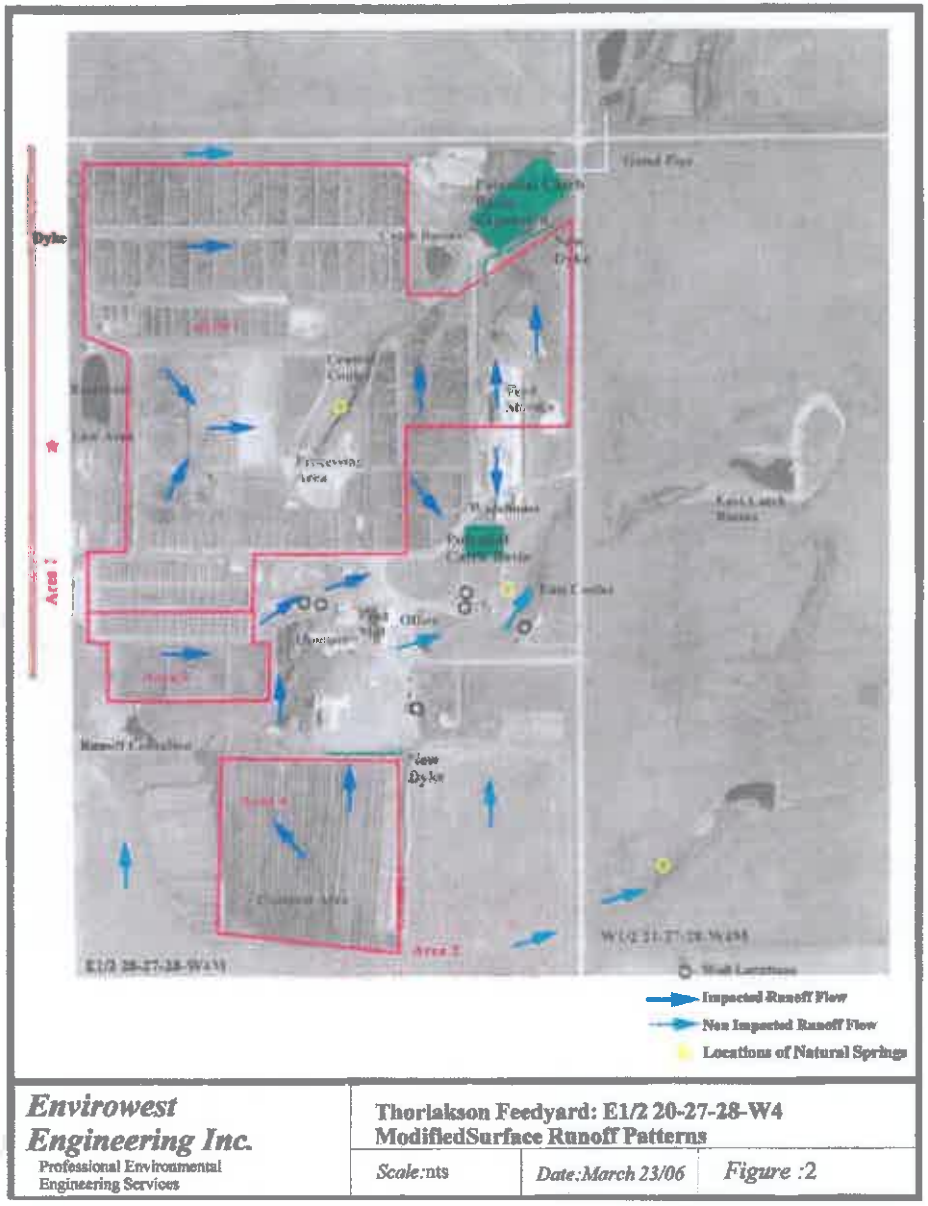
Method of Delivery: Email

Date of Delivery: May 6, 2014

Map 1: Thorlakson Feedyards, feedlot operation NE 20-27-28-W4

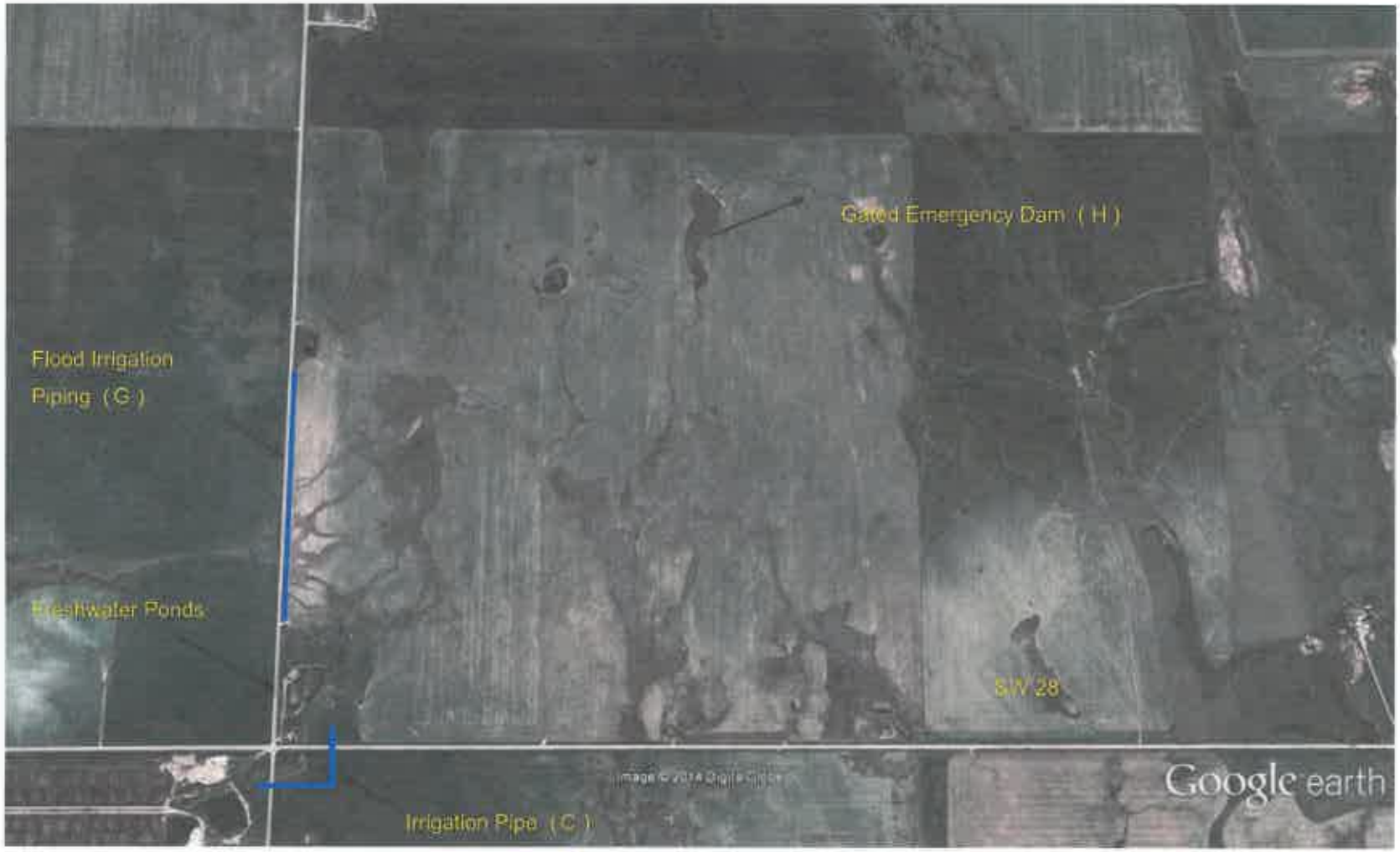


Map 2. Thorlakson Feedyards Surface Water Flow. Diagram produced by Envirowest Engineering Inc.

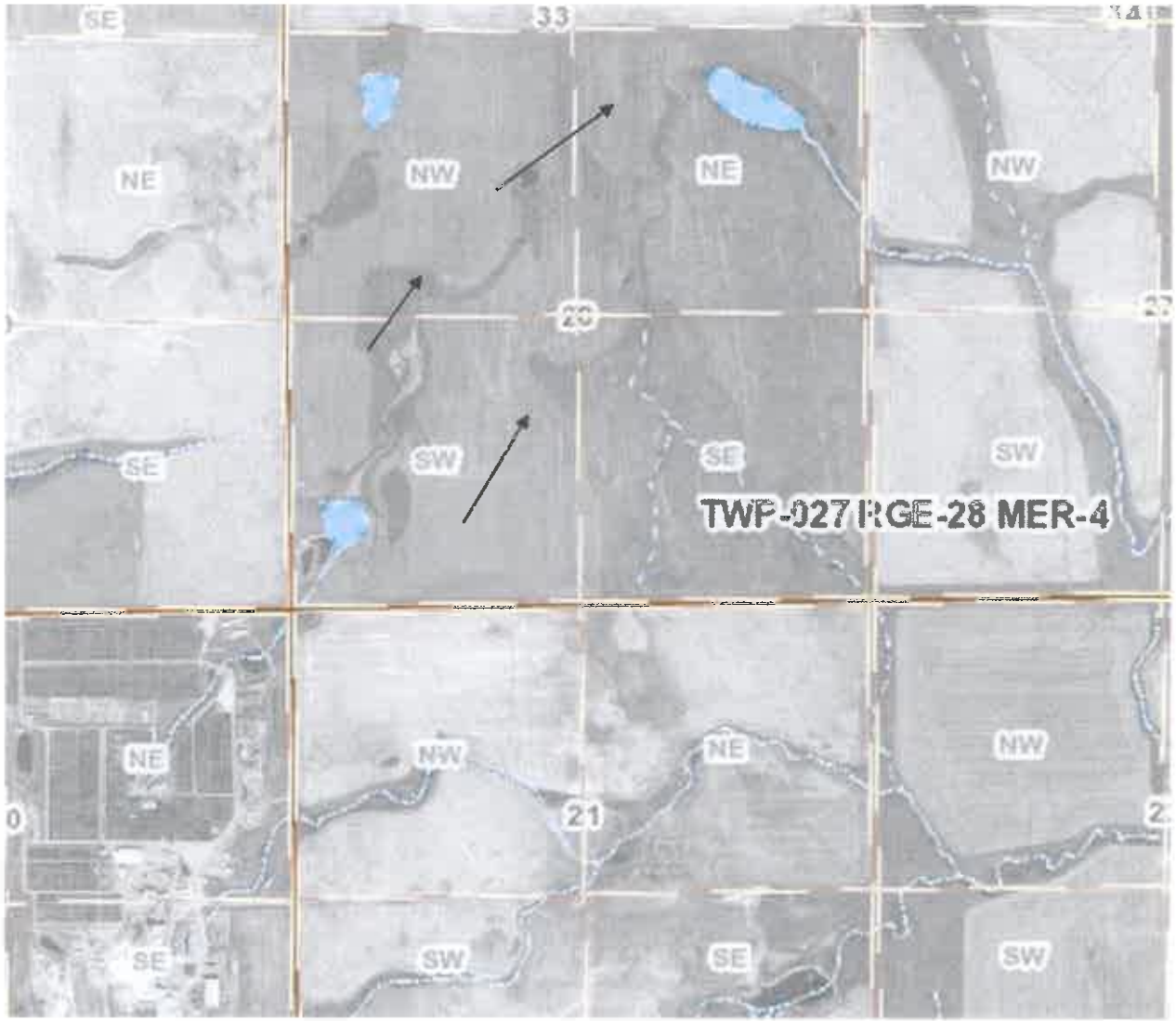


Note: The east catch basin was removed in 2009, and neither of the two indicated proposed catch basins were constructed

Map 3: SW 28-27-28-W4. Field on which catch basin contents are currently applied



Map 4: Surface Water flow patterns from feedlot through section 28



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May 7, 2014

Please note that the date listed on page 4 under the "Right to Request a Review" section is incorrectly listed as May 7, 2014.

The correct date should be **May 26, 2014**

I apologize for any confusion this may have caused.

Thank you,

Lynn Stewart, MSc., P.Ag
Inspector
Natural Resources Conservation Board