From: Fiona Vance
To: Laura Friend

Cc: <u>Bill Kennedy; Kelsey Peddle; Francisco Echegaray; Sean Royer</u>

Subject: RE: LA24002 Van Huigenbos Farms Ltd. - Board Information Request

Date: August 21, 2024 12:31:46 PM
Attachments: Van Huigenbos 2015 ERST.pdf
Van Huigenbos 2016 ERST.pdf

Good afternoon.

Further to your e-mail request below, please find attached:

- 1) ERST (scanned PDF) from **September 2015** for the chicken barn (later decommissioned), feedlot pens, veal (calf) barn, pole barn, "new" pens, and "new" catch basin new being in 2015. This ERST was conducted in the context of application LA15045, and this is the ERST that the Approval Officer referred to in LA24002.
- 2) ERST (scanned PDF) from **January 2016** for the same facilities.

The Board and parties may wish to refer to the NRCB's Guide for the ERST (Version 1.2, dated September 2011), which is available on the NRCB public website at 74333 (nrcb.ca).

The 2016 ERST was entered electronically into the CFO database only, which is why the scanned document is less reader-friendly than the September 2015 ERST.

The 2016 ERST is substantially the same as the 2015 ERST. In early 2016 the NRCB ran quality assurance on some ERSTs. In the course of the quality assurance exercise, minor points were corrected. You may observe that the differences between the September 2015 ERST and the January 2016 ERST are:

- Veal Barn/Barn 3 scored 31.2 on 2015 ERST for risk to surface water and 32.4 on 2016 ERST for risk to surface water. Both scores are still considered low
- LA15045 Feedlot Pens on 2016 ERST are labeled as new feedlot pens on 2015 ERST
- LA15045 Catch Basin on 2016 ERST is labeled as new catch basin on 2015 ERST
- LA15045 Feedlot pens scored 37.2 on 2015 ERST for risk to surface water and 42 on 2016 ERST for risk to surface water. Both scores are still considered low

Regards,

Fiona N. Vance (she/elle)
Chief Legal Officer - Operations, NRCB
Fiona.Vance@nrcb.ca
(780) 999-3197

This communication, including any attachments, is intended for the recipient to whom it is addressed, and may contain confidential, personal, or privileged information. If you are not the intended recipient of this communication, please contact the sender immediately and do not copy, distribute, or take any action in reliance on it. Any communication received in error, or subsequent reply, should be double-deleted or destroyed without making a copy.

From: Laura Friend <Laura.Friend@nrcb.ca>
Sent: Tuesday, August 20, 2024 4:23 PM
To: Fiona Vance <Fiona.Vance@nrcb.ca>

Cc: cindyc@mdwillowcreek.com; development@fortmacleod.com; execassist@fortmacleod.com; Bill Kennedy <Bill.Kennedy@nrcb.ca>; Francisco Echegaray <Francisco.Echegaray@nrcb.ca>; Kelsey

Peddle <kelsey.peddle@nrcb.ca>; Sean Royer <Sean.Royer@nrcb.ca> **Subject:** LA24002 Van Huigenbos Farms Ltd. - Board Information Request

Ms. Vance,

Te Board requests that you provide it with the 2015 ERST referenced in the approval officer's decision summary and technical document. On receipt, the Board will circulate the ERST to all parties in the RFR process.

The email has been bcc'd to the operator and the directly affected parties.

Laura Friend
Manager, Board Reviews
Laura.friend@nrcb.ca
403-297-8269

Environmental Risk Screening Tool for Manure Facilities at Confined Feeding Operations Version 1.2 – September 2011 (Information on how to complete this form is available in a companion document.)

Facility 1 Name:	Facility 2 Name:	Facili	ty 3 Name: _	eal barn
Legal Land Location: SE 21-9-26 W4	CFO name	Van Huigenbos e:	Farms	
Screening Completed By: Karen	Da	ite Completed:	Sept 17, 2015	
N	OTE- Each facility should be sco	red individually	/	
HAZARD POTENTIAL				
Manure Type				
Solid Manure Runoff water with manure constituents Liquid Manure	(e.g., catch basin contents)	4 10 20	Score:	4 4 4
Annual Manure Amount (tonnes)				
>60,000 40,000 to 60,000 20,000 to <40,000 <20,000		8 5 2 1	Score: [1 1 1
Total Hazard Potential Score (maxim	num 28): 5 5			

PATHWAY

GROUNDWATER

General comments and overall scoring criteria

☐ ☐ ☐ If there is a water well directly located within the manure storage area, score the groundwater section as high risk.

If the above condition does not exist, continue scoring the groundwater section.

To help score the next two factors, complete the following and provide a sketch if possible:

Depth of storage below grade 0 0
Depth to top of Protective Layer below grade 4 4
Depth to bottom of Protective Layer below grade 18.9
Thickness of Protective Layer 14.9
Depth of UGR below grade 20.7
Depth to UGR from the bottom of the facility 20.7
Depth of UGR from the bottom of the facility 20.7

Notes:

⁰ (A)

4 (B)

18.9 (C)

14.9 (D)

20.7 (E)

20.7 (F)

I am combining two layers for the PL - a brown oxidized till and clay and a gray unoxidized clay and till as I suspect they are the same formation - simply in contact with air and not in contact with air. (Probably doesn't change numbers appreciably)

Uppermost Groundwater Resource (UGR)

170		Subsoil Texture	
Depth to UGR (m) (from the bottom of the facility)	Fine - Medium	Coarse	Very Coarse
>30	1	4	7
8 - 30	2	5	8
<8	3	6	10

Score: 8 8 8

Protective Layer(s) (PL) Between Bottom of Facility and UGR

Score is 20 if the storage is constructed into the UGR

		Subsoil Texture				
Thickness of Protective Layer(s) (m)	Fine	Medium	Coarse – Very Coarse			
>10	1	3	8			
5 - 10	4	6	12			
2 - <5	6	9	16			
<2	8	12	20			

Score: 1 1 1

Liner Type

Meets AOPA liner or protective layer requirements	1
Concrete liner – no specs	2
May meet AOPA requirements	15
Does not meet AOPA requirements	20

Score: 1 1 1

Notes

Naturally occurring protective layer that meets AOPA requirements proven for this application. Also one water well was decommissioned and another one drilled since the last ERST done.

Water Well Risk Scoring

Complete the table below for each water well within 400 m of the reference point identified. If the well is upslope of the facility, the well should be given a score of 1.

The "Highest Risk Water Well" is the well with the highest score.

		Distance to \	Water Well (m)	
Depth to top of open interval in water well (m)	≥100 to 400	60 to 99	30 to 59	<30
>100m	1	2	3	4
30-100m	5	6	7	8
<30m	9	10	12	15

- If well annulus filled with cuttings, add 3 points
- If well has a drive shoe seal, add 5 points
- If well has no seal or the nature of the seal is unknown, add 8 points.

Well I.D.		9731008	i					
Score	15	10	12					
Well I.D.		1		1		l	1	
Score		=						_

Highest Risk Water Well (highest score from wells scored above):

Score:

15

10

12

Infiltration Potential

	Average Annual F	Precipitation (mm	
Predominant Soil type	<400	400-600	>600
Fine	The said that I have been a	Lipos St. Ste.	2
Medium	3		4
Coarse	5	6	8

Score: 4 4	4
------------	---

Special Considerations (Allowable range of -8 to +8 with a total score for this section not to go over or under the allowable range). Score is 0 if there are no special considerations

Special consideration examples:

- Pumping rate of nearby water well (concern is that even if the well is upslope, a cone of depression may develop which could draw in contaminated water)
- Presence of any springs that have the potential to be impacted by the CFO.
- Water well in pit
- Certainty of information (ie. remove points for high quality of information, is not intended to be used for low quality of info)
- Additional points may be added if there are multiple wells that score high in the water well risk scoring criteria

If a special consideration(s) is used, describe:	Score:	0 0 0
Total Groundwater Pathway Score (maximum score 81): 29 24	26	

EXPOSURE POTENTIAL

GROUNDWATER

Risk Level	Hazard Potential Score + Groundwater Pathway Score (maximum score – 109)			
High Potential Risk to the Environment	>90			
Moderate Potential Risk to the Environment	70 – 90			
Low Potential Risk to the Environment	<70			

If you checked off the following in the groundwater section, indicate here as well.
☐ ☐ ☐ If there is a water well directly located within the manure storage area, score the groundwate
section as high risk.

Notes		Q -		

PATHWAY

SURFACE WATER

General comments and overall scoring criteria
☐ ☐ ☐ If body of water is known to be upslope of the facility, score the surface water section as low risk.
☐ ☐ ☐ If no water body within 800 m, score the surface water section as low risk.
□ □ □ If the facility is located less than 1 m (in elevation) above the 1 in 25 year floodplain level, score the surface
water section as high risk.
If none of the above conditions exist, continue scoring the surface water section.

Likelihood of Runoff Reaching a Water Body

	Slope of land from facility to water body (%)					
Horizontal Distance to Water Body	<4	4 - <6	6 - 12	>12		
>100m	1	2	3	4		
30-100m	2	3	4	5		
<30m	3	4	5	6		

Score: 4 4 4

Surface Water Runoff

	Average Annual Precipitation (mm)					
Predominant Soil type	<400	400-600	>600			
Coarse	Valuation 1	2				
Medium	3	4				
Fine	5	6	8			

Score: 4 4

Surface Water Run-on Co All upslope surface water of	liverted around the facility	0				
Most upslope surface wate Minimal upslope surface water		1 5	Score:	0	5	0
Manure Impacted Area Ro No yard runoff (e.g., covered All runoff controlled	ed facility)	0 4				
Most runoff controlled (>80 Minimal control of lot runoff		10 20	Score:	0	4	0
Runoff Flow Path betwee	n Facility and Receiving Bod	y of Water				
	Veget	tation Cover				
Type of Yard Runoff Flow	> 50% Vegetated	< 50% Vegetated or F	rozen			
Dispersed flow	1	4	27			
Channelled flow	7	15				
			Score:	7	7	7
Notes						
of the state of th						

Special Considerations (Allowable range of -5 to +5 with a total score for this section not to go over or under the range). Score is 0 if there are no special considerations

Special consideration examples:

- Secondary containment
- · Amount of freeboard
- Above ground earthen storage
- Certainty of information (ie. remove points for high quality of information, is not intended to be used for low quality of info)

If a special consideration(s) is used, describe:			S	core:	0	0	0
When scoring the surface water section of the tool choose runoff water with n	nanure co	onstituent	s for solid m	anure faciliti	es.		
Additional score of 6 for solid manure storage	6	6	6				
Total Surface Water Pathway Score (maximum score 54):	21	30	21				
Notes							

SURFACE WATER

 ☐ If highest use surface water body (with the greatest number of types operation facility being assessed is a small slough or creek on private land factor of 1 ☐ If highest use surface water body (with the greatest number of types of facility being assessed is a common body of water with little human use (with 1.1 ☐ If highest use surface water body (with the greatest number of types of facility being assessed is a high use common body of water (recreation, water lazard Potential Score	but not a common body of water, use an exposure potential of users) located within 800m of the confined feeding operation thin 10 miles downstream), use an exposure potential factor of of users) located within 800m of the confined feeding operation ter supply, etc.), use an exposure potential factor of 1.2
Hazard Potential Score $\frac{5}{}$ + Surface water Pathway Score $\frac{30}{}$ = $\frac{35}{}$ × E	xposure Potential Multiplier = Risk Score
Hazard Potential Score $\frac{5}{}$ + Surface water Pathway Score $\frac{21}{}$ = $\frac{26}{}$ × E	xposure Potential Multiplier 1.2 = Risk Score 31.2
Risk Level	Hazard Potential Score + Surface Water Pathway Score (maximum score – 82)
High Potential Risk to the Environment	> 58
High Potential Risk to the Environment Moderate Potential Risk to the Environment	> 58 44 – 58
Moderate Potential Risk to the Environment	44 – 58

Environmental Risk Screening Tool for Manure Facilities at Confined Feeding Operations Version 1.2 – September 2011

	w to complete this form is available in a d			/	
Facility 1 Name: Fac	cility 2 Name:	Facilit	y 3 Name: _	ew catch basin	
Legal Land Location: SE 21-9-26 W4		n Huigenhos F	Farms		
Screening Completed By: Karen	Date Co	ompleted:	Sept 17, 2015		W
NOTE	- Each facility should be scored ir	ndividually			
HAZARD POTENTIAL					
Manure Type					
Solid Manure Runoff water with manure constituents (e.g Liquid Manure		4 0 0	Score: [4 4	10
Annual Manure Amount (tonnes)					
>60,000 40,000 to 60,000 20,000 to <40,000 <20,000	8 5 2 1		Score:	1 1	1
Total Hazard Potential Score (maximum	28): 5 5 11				

PATHWAY

GROUNDWATER

General comments and overall scoring criteria

☐ ☐ ☐ If there is a water well directly located within the manure storage area, score the groundwater section as high risk.

If the above condition does not exist, continue scoring the groundwater section.

To help score the next two factors, complete the following and provide a sketch if possible:

Depth of storage below grade	0	0	3 (A
Depth to top of Protective Layer below grade	4	4	4 (B
Depth to bottom of Protective Layer below grade	18.9	18.9	18.9 (C
Thickness of Protective Layer	14.9	14.9	14.9 (D
Depth of UGR below grade	20.7	20.7	20.7 (E
Depth to UGR from the bottom of the facility	20.7	20.7	17.7 (F

Notes:

I am combining two layers for the PL - a brown oxidized till and clay and a gray unoxidized clay and till as I suspect they are the same formation - simply in contact with air and not in contact with air. (Probably doesn't change numbers appreciably) Some assumptions made for new facilities that are not applied for yet.

Uppermost Groundwater Resource (UGR)

	Subsoil Texture					
Depth to UGR (m) (from the bottom of the facility)	Fine - Medium	Coarse	Very Coarse			
>30	1	4	7			
- 00	l l	T T	•			
8 - 30	2	5	8			

Score: 8 8 8

Protective Layer(s) (PL) Between Bottom of Facility and UGR

• Score is 20 if the storage is constructed into the UGR

Meets AOPA liner or protective layer requirements

	Subsoil Texture				
Thickness of Protective Layer(s) (m)	Fine	Medium	Coarse – Very Coarse		
>10	1	3	8		
5 - 10	4	6	12		
2 - <5	6	9	16		
<2	8	12	20		

Score:	1	1	1
Score:	1	1	1

Notes

Liner Type

Concrete liner – no specs

May meet AOPA requirements

Does not meet AOPA requirements

Naturally occurring protective layer that meets AOPA requirements proven for this application. Also one water well was decommissioned and another one drilled since the last ERST done.

15

20

Water Well Risk Scoring

Complete the table below for each water well within 400 m of the reference point identified. If the well is upslope of the facility, the well should be given a score of 1.

The "Highest Risk Water Well" is the well with the highest score.

	en esta de la companya de la company	Distance to V	Vater Well (m)	
Depth to top of open interval in water well (m)	≥100 to 400	60 to 99	30 to 59	<30
>100m	1	2	3	4
30-100m	5	6	7	8
<30m	9	10	12	15

- If well annulus filled with cuttings, add 3 points
- If well has a drive shoe seal, add 5 points
- If well has no seal or the nature of the seal is unknown, add 8 points.

Well I.D.		9731008						
Score	9	10	9					
Well I.D.								1
Score								

Highest Risk Water Well (highest score from wells scored above):

Score: 9 10 9

Infiltration Potential

	Average Annual Precipitation (mm)				
Predominant Soil type	<400	400-600	>600		
Fine	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		2		
Medium	3		4		
Coarse	5	6	- 8		

			_				
ledium	3		4				
oarse	5	6	- 8				
			Score:	4	4	4	
pecial Considerations (All prunder the allowable range				to go ove	er		
Special consideration eva	mnles:						

- Pumping rate of nearby water well (concern is that even if the well is upslope, a cone of depression may develop which could draw in contaminated water)
 - Presence of any springs that have the potential to be impacted by the CFO.
 - Water well in pit
 - Certainty of information (ie. remove points for high quality of information, is not intended to be used for low quality of info)
 - Additional points may be added if there are multiple wells that score high in the water well risk scoring criteria

If a special consideration(s) is used, describe:	Score:	0 0 0
Total Groundwater Pathway Score (maximum score 81): 23 24	23	

EXPOSURE POTENTIAL

GROUNDWATER

☐ ☐ ☐ If no water wells are completed within 400m of the confined feed	ling operation facility being assessed, use an exposure potential
factor of 1	
\square \blacksquare If one or more water wells located within 400m of the confined fe	eding operation facility, but greater than 100m from the confined
feeding operation facility, use an exposure potential factor of 1.1	
lacksquare $lacksquare$	eding operation facility, use an exposure potential factor of 1.2
Hazard Potential Score5 + Groundwater Pathway Score =	28 × Exposure Potential Multiplier 1.2 = Risk Score 33.6
Hazard Potential Score $\frac{5}{}$ + Groundwater Pathway Score $\frac{24}{}$ =	29 × Exposure Potential Multiplier 1.2 = Risk Score 34.8
Hazard Potential Score + Groundwater Pathway Score =	34 × Exposure Potential Multiplier 1.1 = Risk Score 37.4

Risk Level	Hazard Potential Score + Groundwater Pathway Score (maximum score – 109)
High Potential Risk to the Environment	>90
Moderate Potential Risk to the Environment	70 – 90
Low Potential Risk to the Environment	<70

If you checked off the following in the groundwater section, indicate here as well.

If there is a water well directly located within the manure storage area, score the groundwater section as high risk.

Notes		
#		

PATHWAY

SURFACE WATER

General comments and overall scoring criteria
☐ ☐ ☐ If body of water is known to be upslope of the facility, score the surface water section as low risk.
☐ ☐ ☐ If no water body within 800 m, score the surface water section as low risk.
☐ ☐ ☐ If the facility is located less than 1 m (in elevation) above the 1 in 25 year floodplain level, score the surface
water section as high risk.
If none of the above conditions exist, continue scoring the surface water section.

Likelihood of Runoff Reaching a Water Body

		Slope of land from fac	cility to water body (%	
Horizontal Distance to Water Body	<4	4 - <6	6 - 12	>12
>100m	1-	2	3	4
30-100m	2	3	4	5
<30m	3	4	5	6

Score: 4 4 4

Surface Water Runoff

NO TELL PRINCIPLE DEL	Average Annual Precipitation (mm)					
Predominant Soil type	<400	400-600	>600			
Coarse	SWC CSIDE A	2	2			
Medium	3	4	1			
Fine	5	6	8			

Score:	4	4		4
--------	---	---	--	---

Surface Water Run-on Co All upslope surface water d Most upslope surface wate Minimal upslope surface wa	iverted around the facility r diverted (>80% - 99%)	0 1 5	Score:	0	1	5
Manure Impacted Area Ro No yard runoff (e.g., covered All runoff controlled Most runoff controlled (>80 Minimal control of lot runoff	ed facility) % - 99%)	0 4 10 20	Score:	0	4	4
Runoff Flow Path betwee	n Facility and Receiving Body	of Water				
	Vegeta	ation Cover				
Type of Yard Runoff Flow	> 50% Vegetated	< 50% Vegetated or	Frozen			
Dispersed flow	1	4				
Channelled flow	7	15				
			Score:	7	7	7
Notes						
					=	

Special Considerations (Allowable range of -5 to +5 with a total score for this section not to go over or under the range). Score is 0 if there are no special considerations

Special consideration examples:

- Secondary containment
- Amount of freeboard
- Above ground earthen storage
- Certainty of information (ie. remove points for high quality of information, is not intended to be used for low quality of info)

If a special consideration(s) is used, describe:	Score:	0 0 0
When scoring the surface water section of the tool choose runoff water with manure constitution	tuents for solid manure fa	acilities.
Additional score of 6 for solid manure storage	6	
Total Surface Water Pathway Score (maximum score 54): 21 2	24	
Notes		

SURFACE WATER

 If highest use surface water body (with the greatest number of types operation facility being assessed is a small slough or creek on private land factor of 1 If highest use surface water body (with the greatest number of types of facility being assessed is a common body of water with little human use (with 1.1 If highest use surface water body (with the greatest number of types of facility being assessed is a high use common body of water (recreation, water land). 	but not a common body of water, use an exposure potential of users) located within 800m of the confined feeding operation thin 10 miles downstream), use an exposure potential factor of of users) located within 800m of the confined feeding operation
Hazard Potential Score $\frac{5}{2}$ + Surface water Pathway Score $\frac{21}{2}$ = $\frac{26}{2}$ × Ex	exposure Potential Multiplier $\frac{1.2}{}$ = Risk Score $\frac{31.2}{}$
Hazard Potential Score $\frac{5}{}$ + Surface water Pathway Score $\frac{26}{}$ = $\frac{31}{}$ × Ex	exposure Potential Multiplier $\frac{1.2}{}$ = Risk Score $\frac{37.2}{}$
Hazard Potential Score + Surface water Pathway Score = 35 × Ex	
Risk Level	Hazard Potential Score + Surface Water Pathway Score (maximum score – 82)
High Potential Risk to the Environment	> 58
Moderate Potential Risk to the Environment	44 – 58
Low Potential Risk to the Environment	<44
The state of the s	
If you checked off the following in the surface water section, indicate here as well.	

No. of the last of the last		100 100 000
Print	Save	Reset

2001.12.11.187 Van Huigenbos, Henry - Van Huigenbos

Willow Creek, M.D. of Southern

SE-21-009-26-W4

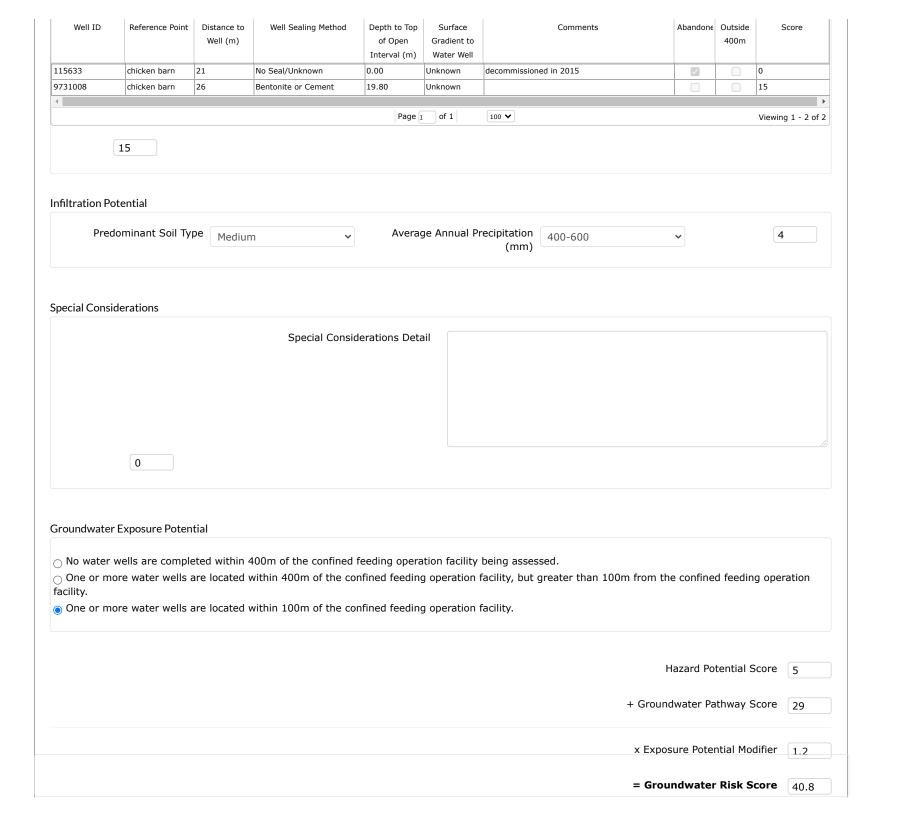
Farms Ltd. Edit Address Book

(/AddressBook/ViewParty/3836?

returnUrl=https%3A%2F%2Fcfo2.nrcb.ca%2FRiskAssessment%2FViewRiskAssessment%2F2974)

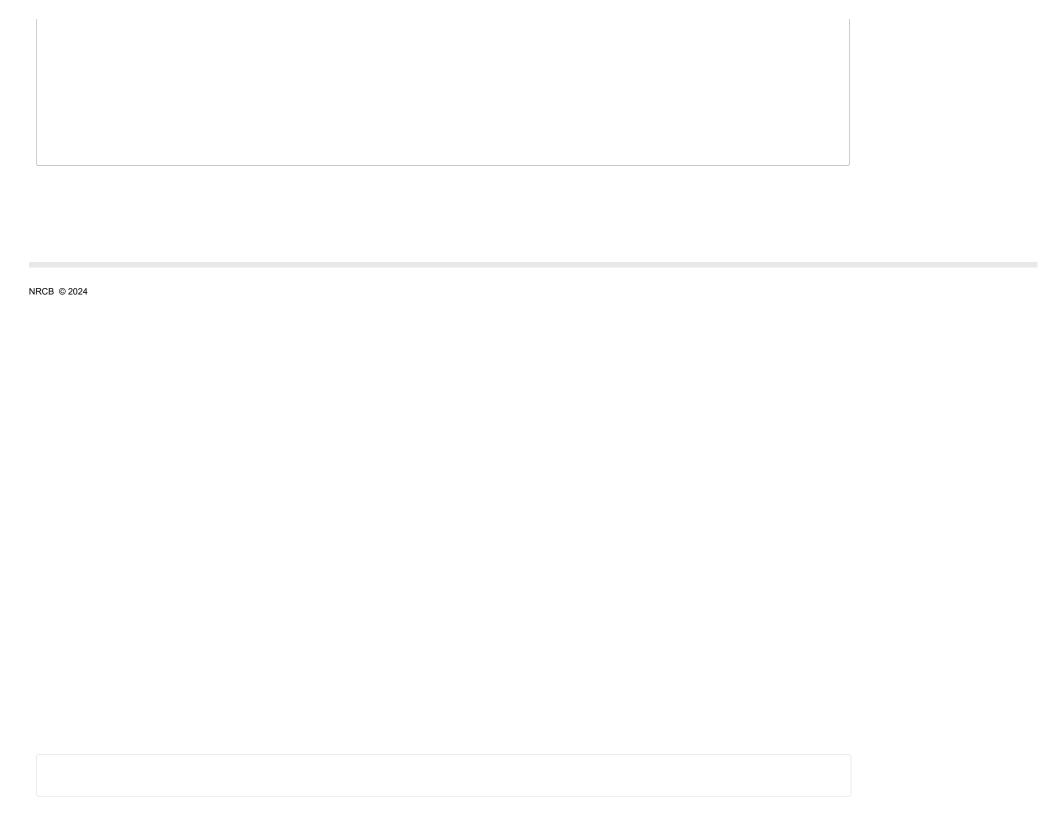
Risk Assessment Type	Application		
Facility Name	Barn 1 and 2 (to be decomm. with Auth LA17054)		
Date Of Site Visit	09/15/2015		
Visit Completed By	Karen Stewart		
Person Interviewed	Gerrit Van Huigebos		
Screening Completed By	Karen Stewart		
Date Scored	06/01/2016		
Reference Well for UGR	9731008		
Reference Well for PL	9731008		
AOPA Approved			
Locked	_		
Manure Type	Solid Manure Storage		4
Annual Manure Amount (tonnes)	500 to < 20,000 🕶		1
		Total Hazard Potential	5

Storage Specifications			
Depth Of Storage Below Grade	0	Thickness Of Protective Layer Thickness Of Protective Layer is calculated	
		correctly but doesn't match the overriden value from the Facility of 11.6.	
Depth To Top Of Protective Layer Below Grade	7.32	Depth Of Uppermost Groundwater Resource	20.42
Depth To Bottom Of Protective Layer Below Grade	18.9	Depth To UGR from the Bottom of the Facility	20.4
Jppermost Groundwater Resource (UGR)			
Depth to UGR (m) 8 - 30	•	Subsoil Texture Very Coarse V	8
Protective Layer(s) (PL) Between Bottom of Facility and Thickness of Protective >10 Layers (m)	Subsoil Texture Fine	Storage is Constructed into UGR over	erride 1
iner Type			
1	Liner Type	Meets AOPA liner or protective layer requirements	•
Water Wells			
	Page 1	of 1 100 v	Viewing 1 - 2 of 2



				Low pot	tential risk to the	environment.
Body of water is known to be No water body with 800m - Io Facility is located less than 1r None of the Above	ow risk.		ain - high risk.			
Likelihood of Runoff Reaching a W	Vater Body					
Horizontal Distance to Water Body	>100m •	Slope of La	and From Facility to Water Body	>12	~	4
Surface Water Runoff						
Predominant Soil Type	Medium ~	Average A	Annual Precipitation	400-600	•	4
Surface Water Run-on Control 0	Surface Water	Run-on Control	All upslope surface	e water diverted around	the facility 🗸	
Manure Impacted Area Runoff Co	ontrol					
0	Manure Impacted Are	a Runoff Control	No yard runoff (e.	g. covered facility) 🔻		
Runoff Flow Path Between Facilit	y and Receiving Body of Wate	r				
Type of Yard Runoff Flow	Channelled Flow V		Vegetation Cover	>50% Vegetated	•	7
Special Considerations						
	Special Cons	iderations Detail				

0	
face Water Exposure Potential	
Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being a small slough or creek on private land but not a common body of water.	assessed
Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being	assessed
a common body of water with little human use (within 10 miles downstream). Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being	assessed
a high use common body of water (recreation, water supply, etc.).	
Hazard Potential Score	5
+ Additional Pathway Score for Solid Manure Storage	6
+ Surface Water Pathway Score	15
x Exposure Potential Modifier	1.2
= Surface Water Risk Score	31.2
Low potential risk to the envi	ronment.
ors	
ne	
arnings ickness Of Protective Laver is calculated correctly but doesn't match the overriden value from the Facility of 11.6.	
extress of Protective Eayer is ediculated correctly but doesn't materiating overhalm value from the ratingy of 11.0.	



2001.12.11.187 Van Huigenbos, Henry - Van Huigenbos

Willow Creek, M.D. of Southern

SE-21-009-26-W4

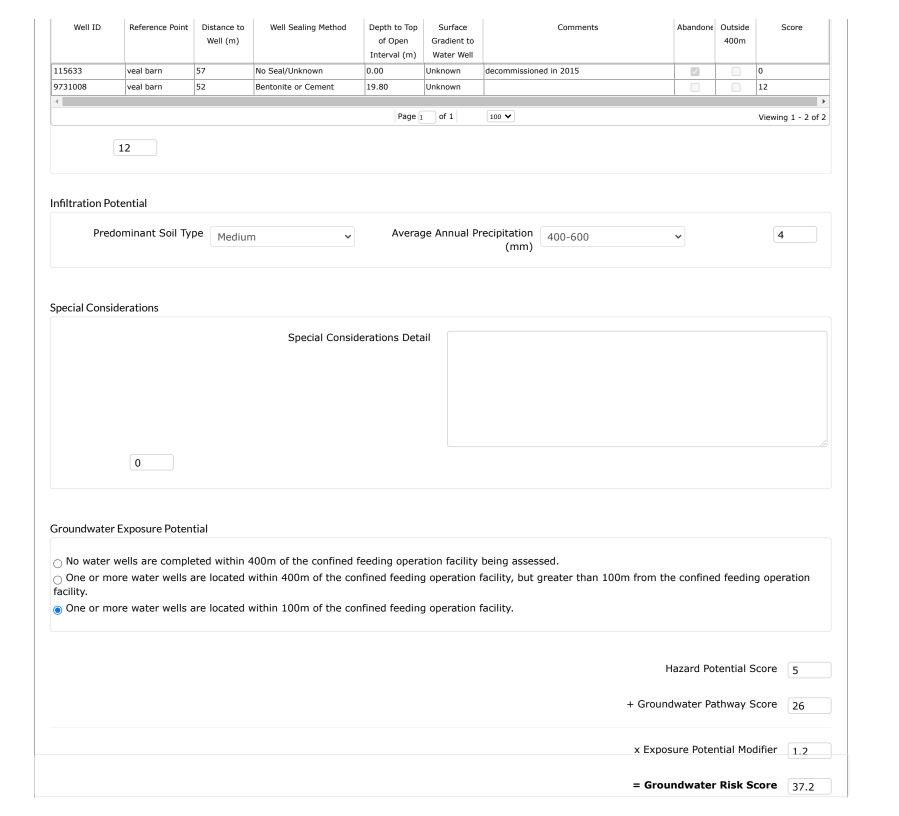
Farms Ltd. Edit Address Book

(/AddressBook/ViewParty/3836?

returnUrl=https%3A%2F%2Fcfo2.nrcb.ca%2FRiskAssessment%2FViewRiskAssessment%2F2975)

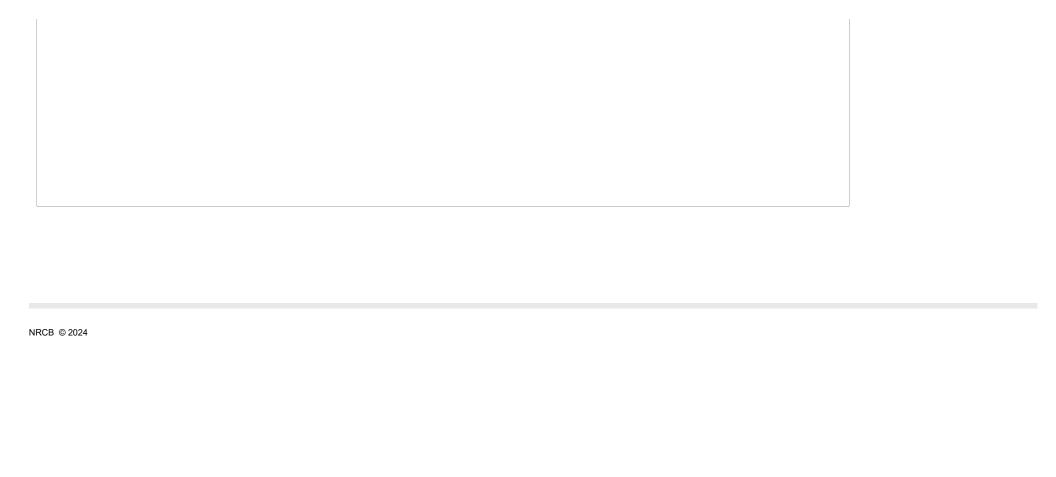
Risk Assessment Type	Application		
Facility Name			
Date Of Site Visit			
Visit Completed By			
Person Interviewed	Gerrit Van Huigebos		
Screening Completed By	Karen Stewart		
Date Scored	06/01/2016		
Reference Well for UGR	9731008		
Reference Well for PL	9731008		
AOPA Approved			
Locked	_		
Manure Type	Called Managers Changes		4
	Solid Manure Storage		
Annual Manure Amount (tonnes)	500 to < 20,000		1
		Total Hazard Potential	5

Storage Specifications			
Depth Of Storage Below Grade	0	Thickness Of Protective Layer Thickness Of Protective Layer is calculated	
		correctly but doesn't match the overriden value from the Facility of 11.6.	
Depth To Top Of Protective Layer Below Grade	7.32	Depth Of Uppermost Groundwater Resource	20.42
Depth To Bottom Of Protective Layer Below Grade	18.9	Depth To UGR from the Bottom of the Facility	20.4
Jppermost Groundwater Resource (UGR)			
Depth to UGR (m) 8 - 30	•	Subsoil Texture Very Coarse V	8
Protective Layer(s) (PL) Between Bottom of Facility and Thickness of Protective >10 Layers (m)	Subsoil Texture Fine	Storage is Constructed into UGR over	erride 1
iner Type			
1	Liner Type	Meets AOPA liner or protective layer requirements	•
Water Wells			
	Page 1	of 1 100 v	Viewing 1 - 2 of 2



Facility is located less than 1 None of the Above	lm (in elevation) above t	ne 1 in 25 year floodpla	ain - high risk.			
kelihood of Runoff Reaching a \	Water Body					
		Page 1	of 1 100 🗸			Viewing 1 - 1 of 1
Water Body Name	Water Body Type	Refer	rence Point	Distance To W	ater Body (m)	Surface Gradient to Water Body
/illow Creek	Creek	barn		289	Г	Downslope
		Page 1	of 1 100 🗸			Viewing 1 - 1 of 1
Horizontal Distance to Water Body	30 - 100m	✓ Slope of La	and From Facility to Water Body	>12	v	5
urface Water Runoff						
Predominant Soil Type	Medium	• Average A	Annual Precipitation	400-600	•	4
urface Water Run-on Control						
0	Surface \	Vater Run-on Control	All upslope surface	e water diverted arc	und the facility	y v
lanure Impacted Area Runoff C	ontrol					
0	Manure Impacted	d Area Runoff Control	No yard runoff (e.g	g. covered facility)	•	
unoff Flow Path Between Facili	ity and Receiving Body of	Water				

ecial Considerations	
Special Considerations Detail	
0	
face Water Exposure Potential	
Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being a small slough or creek on private land but not a common body of water. Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being a common body of water with little human use (within 10 miles downstream). Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being a high use common body of water (recreation, water supply, etc.).	assessed
Hazard Potential Score	5
+ Additional Pathway Score for Solid Manure Storage	6
+ Surface Water Pathway Score	16
x Exposure Potential Modifier	1.2
= Surface Water Risk Score	32.4
Low potential risk to the envir	onment.
ors ne	
rnings ckness Of Protective Layer is calculated correctly but doesn't match the overriden value from the Facility of 11.6.	



2001.12.11.187 Van Huigenbos, Henry - Van Huigenbos

Willow Creek, M.D. of Southern

SE-21-009-26-W4

Farms Ltd. Edit Address Book

(/AddressBook/ViewParty/3836?

returnUrl=https%3A%2F%2Fcfo2.nrcb.ca%2FRiskAssessment%2FViewRiskAssessment%2F2979)

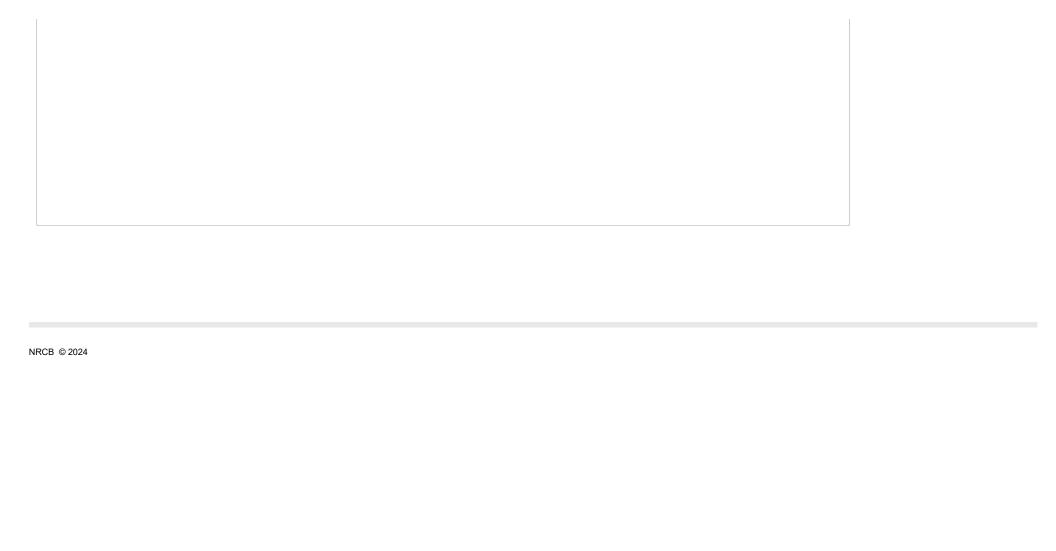
Risk Assessment Type	Application		
Facility Name	LA15045 Catch basin		
Date Of Site Visit	09/15/2015		
Visit Completed By	Karen Stewart		
Person Interviewed	Gerrit Van Huigebos		
Screening Completed By	Karen Stewart		
Date Scored	06/01/2016		
Reference Well for UGR	9731008		
Reference Well for PL	9731008		
AOPA Approved			
Locked			
Manure Type	Catch Basin 🗸		10
Annual Manure Amount (tonnes)	500 to < 20,000 •		1
	330 33 1 20,000		
		Total Hazard Potential	11

Depth Of Storage Below Grade 2 Thickness Of Protective Layer is calculated correctly but doesn't match the overriden value from the Facility of 11.6. Depth To Top Of Protective Layer Below Grade 7.32 Depth Of Uppermost Groundwater Resource 20.42 Depth To Bottom Of Protective Layer Below Grade 18.9 Depth To UGR from the Bottom of the Facility 18.4 Depth To UGR (m) 8-30 Subsoil Texture Very Coarse 8 Protective Layer(s) (PL) Between Bottom of Facility and UGR Thickness of Protective 1910 Subsoil Texture Fine Storage is Constructed into UGR override Layers (m) Liner Type Meets AOPA liner or protective layer requirements Mater Wells				
Thickness Of Protective Layer is calculated correctly but doesn't match the overriden value from the Facility of 11.6. Depth To Top Of Protective Layer Below Grade 7.32 Depth Of Uppermost Groundwater Resource 20.42 Depth To Bottom Of Protective Layer Below Grade 18.9 Depth To UGR from the Bottom of the Facility 18.4 Uppermost Groundwater Resource (UGR) Depth to UGR (m) 8 - 30 Subsoil Texture Very Coarse 8 Protective Layer(s) (PL) Between Bottom of Facility and UGR Thickness of Protective > 10 Subsoil Texture Fine Storage is Constructed into UGR override Layers (m) Liner Type Meets AOPA liner or protective layer requirements V Water Wells	Storage Specifications			
Depth To Top Of Protective Layer Below Grade 7.32 Depth Of Uppermost Groundwater Resource 20.42 Depth To Bottom Of Protective Layer Below Grade 18.9 Depth To UGR from the Bottom of the Facility 18.4 Uppermost Groundwater Resource (UGR) Depth to UGR (m) 8-30 Subsoil Texture Very Coarse 8 Protective Layer(s) (PL) Between Bottom of Facility and UGR Thickness of Protective >10 Subsoil Texture Fine Storage is Constructed into UGR override Layers (m) Liner Type Liner Type Meets AOPA liner or protective layer requirements > Water Wells	Depth Of Storage Below Grade	2		11.58
Depth To Bottom Of Protective Layer Below Grade 18.9 Depth To UGR from the Bottom of the Facility 18.4 Uppermost Groundwater Resource (UGR) Depth to UGR (m) 8-30 Subsoil Texture Very Coarse 8 Protective Layer(s) (PL) Between Bottom of Facility and UGR Thickness of Protective 10 Layers (m) Subsoil Texture Fine Storage is Constructed into UGR override Layers (m) Liner Type Liner Type Meets AOPA liner or protective layer requirements Water Wells			•	
Uppermost Groundwater Resource (UGR) Depth to UGR (m) 8-30	Depth To Top Of Protective Layer Below Grade	7.32	Depth Of Uppermost Groundwater Resource	20.42
Protective Layer(s) (PL) Between Bottom of Facility and UGR Thickness of Protective > 10	Depth To Bottom Of Protective Layer Below Grade	18.9	Depth To UGR from the Bottom of the Facility	18.4
Protective Layer(s) (PL) Between Bottom of Facility and UGR Thickness of Protective >10	Uppermost Groundwater Resource (UGR)			
Liner Type Liner Type Meets AOPA liner or protective layer requirements 1 Water Wells	Depth to UGR (m) 8 - 30	•	Subsoil Texture Very Coarse	8
Liner Type Meets AOPA liner or protective layer requirements Water Wells	Thickness of Protective		□ Storage is Constructed into UGR over	
1 Water Wells	Liner Type			
	1	Liner Type	Meets AOPA liner or protective layer requirements	~
Page 1 of 1 100 ▼ Viewing 1 - 2 of 2	Water Wells			
		Page 1	of 1 100 v	Viewing 1 - 2 of 2

Well ID	Reference Point	Distance to Well (m)	Well Sealing Method	Depth to Top of Open	Surface Gradient to		Comments	Abandone	Outside 400m	Score
15633	corner of catch	310	No Seal/Unknown	Interval (m) 0.00	Water Well Unknown	Decommission	ed in 2015	✓		0
731008	corner of catch	315	Bentonite or Cement	19.80	Unknown					9
	basin									•
				Page [1	of 1	100 🗸				Viewing 1 - 2 of 2
į	9									
filtration Pot	ential									
Predo	minant Soil Ty	pe Medium	· •	Avera	ge Annual Pr	recipitation (mm)	400-600	~		4
ecial Consid	erations									
	0									
oundwater E	Exposure Poten	tial								
One or mor	e water wells a	are located w	00m of the confined for the con vithin 100m of the con	fined feeding	g operation (acility, but o	sed. greater than 100m from the	e confine	d feedin <u>c</u>	operation
								ogord D-	tontial C	
							п	azaru Po	tential So	core 11
							+ Ground	water Pa	athway So	core 23
							x Expos	ure Pote	ntial Mod	ifier 1.1

				= Groundw	vater Risk Score 37.4
				Low potential	risk to the environment.
Body of water is known to be No water body with 800m - Facility is located less than 1 None of the Above Likelihood of Runoff Reaching a	low risk. .m (in elevation) above		ain - high risk.		
Likeliilood of Kulloff Reaching a	vvater body				
			of 1 100 🗸		Viewing 1 - 1 of 1
Water Body Name	Water Body Type	_	rence Point	Distance To Water Body (m)	Surface Gradient to Water Body
Willow Creek	Creek	corner of catch basin		276	Downslope
		Page 1	of 1 100 🗸		Viewing 1 - 1 of 1
Horizontal Distance to Water Body	7 100111	Slope of La	and From Facility to Water Body	>12	4
Predominant Soil Type Surface Water Run-on Control	Medium	• Average A	Annual Precipitation	400-600	4
5	Surface	Water Run-on Control	Minimal upslope sur	rface water diverted (<80%)	•
Manure Impacted Area Runoff C	ontrol				
4	Manure Impact	ed Area Runoff Control	All runoff controlled	V	
Runoff Flow Path Between Facili	ity and Receiving Body o	· Water			
Type of Yard Runoff Flow	Channelled Flow	•	Vegetation Cover	>50% Vegetated •	7

ecial Considerations		
Special Considerations Detail		
0		
ace Water Exposure Potential		
Highest use surface water body (with the greatest number of types of users) a small slough or creek on private land but not a common body of water. Highest use surface water body (with the greatest number of types of users) a common body of water with little human use (within 10 miles downstream) Highest use surface water body (with the greatest number of types of users) a high use common body of water (recreation, water supply, etc.).	located within 800m of the confined feeding operation facility being .	assessed
	Hazard Potential Score	11
	+ Additional Pathway Score for Solid Manure Storage	0
	+ Surface Water Pathway Score	24
	x Exposure Potential Modifier	1.2
	= Surface Water Risk Score	42.0
	Low potential risk to the envir	onment.
e		
rnings ckness Of Protective Layer is calculated correctly but doesn't match the overr	iden value from the Facility of 11.6.	



2001.12.11.187 Van Huigenbos, Henry - Van Huigenbos

Willow Creek, M.D. of Southern

SE-21-009-26-W4

Farms Ltd. Edit Address Book

(/AddressBook/ViewParty/3836?

returnUrl=https%3A%2F%2Fcfo2.nrcb.ca%2FRiskAssessment%2FViewRiskAssessment%2F2973)

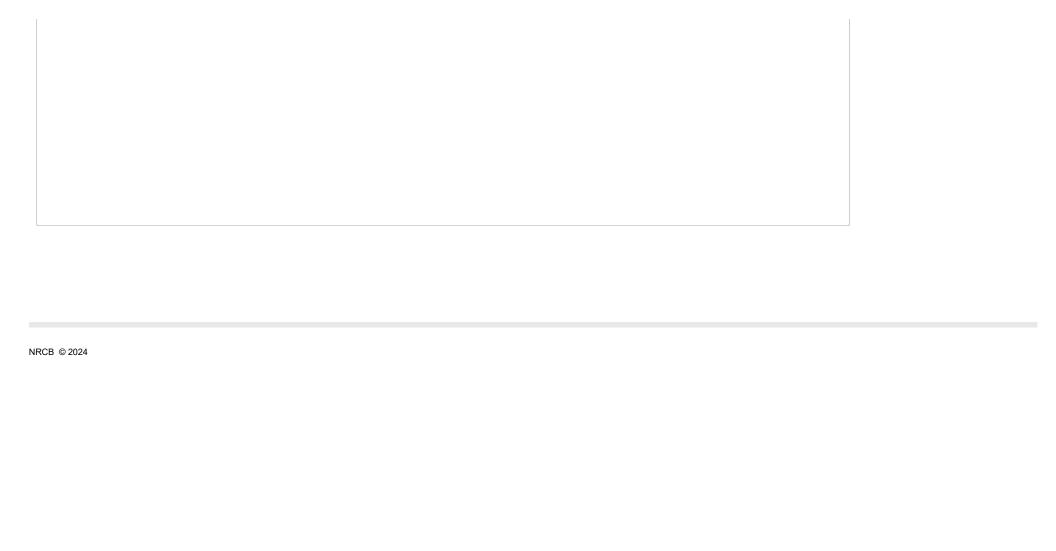
Risk Assessment Type	Application	v	
Facility Name	Feedlot pens		
Date Of Site Visit	09/15/2015		
Visit Completed By	Karen S		
Person Interviewed	Gerrit Van H		
Screening Completed By	Karen		
Date Scored	06/01/2016		
Reference Well for UGR	9731008	•	
Reference Well for PL	9731008	v	
AOPA Approved			
Locked			
Manure Type	Solid Manure Storage	•	4
Annual Manure Amount (tonnes)	500 to < 20,000	v	1
		Total Hazard Potential	5

Storage Specifications			
Depth Of Storage Below Grade	0	Thickness Of Protective Layer Thickness Of Protective Layer is calculated	11.58
		correctly but doesn't match the overriden value from the Facility of 11.6.	
Depth To Top Of Protective Layer Below Grade	7.32	Depth Of Uppermost Groundwater Resource	20.42
Depth To Bottom Of Protective Layer Below Grade	18.9	Depth To UGR from the Bottom of the Facility	20.4
Jppermost Groundwater Resource (UGR)			
Depth to UGR (m) 8 - 30	•	Subsoil Texture Very Coarse V	8
Protective Layer(s) (PL) Between Bottom of Facility and Thickness of Protective >10 Layers (m)	Subsoil Texture Fine	Storage is Constructed into UGR over	erride 1
iner Type			
1	Liner Type	Meets AOPA liner or protective layer requirements	•
Water Wells			
	Page 1	of 1 100 v	Viewing 1 - 2 of 2

Well ID	Reference Point	Distance to Well (m)	Well Sealing Method	Depth to Top of Open Interval (m)	Surface Gradient to Water Well		Comments	Abandone	Outside 400m	Score
115633	east side of feedlot pens	82	No Seal/Unknown	0.00	Upslope	decommissione	ed in 2015	V		1
9731008	east side of feedlot pens	76	Bentonite or Cement	19.80	Unknown					10
4			<u>I</u>							•
				Page [1	of 1	100 🗸				Viewing 1 - 2 of 2
	10									
Infiltration Pot	ential									
Predo	minant Soil Ty	pe Mediun	1 🔻	Avera	ge Annual Pr	recipitation (mm)	400-600	~		4
Special Conside	erations									
			Special Conside	arations Dot	oil .					
			Special Conside	erations Deta	311					
	0									
Groundwater E	xposure Poten	tial								
○ No water w	alle are comple	ated within /	100m of the confined fe	eeding opers	ation facility	haina accaca	sed			
_							greater than 100m from the	e confine	d feedin	g operation
facility.										
One or mor	e water wells a	are located v	vithin 100m of the con	fined feeding	g operation i	acility.				
							н	azard Po	tential S	core 5
							+ Ground	water Pa	athway S	core 24
							x Expos	ure Pote	ntial Mod	lifier 1.2

				= Groundwa	ater Risk Score 34.8
				Low potential	risk to the environme
Body of water is known to be		low risk.			
No water body with 800m -		h - 1 !- 25 fld-l-	da latale atal.		
Facility is located less than 1	.m (m elevation) above t	ne 1 in 25 year nooupia	iin - nign risk.		
None of the Above					
kelihood of Runoff Reaching a N	Water Body				
		Page 1	of 1 100 v		Viewing 1 - 1
Water Body Name	Water Body Type	Refer	ence Point	Distance To Water Body (m)	Surface Gradient to Water B
Villow Creek	Creek	northwest corner of pens		160	Downslope
		Page 1	of 1 100 🗸		Viewing 1 - 1
Horizontal Distance to Water Body	/100111	✓ Slope of La	and From Facility to Water Body	12 💙	4
Predominant Soil Type	Medium	Average A	annual Precipitation 40	₩ 00-600	4
urface Water Run-on Control					
5	Surface	Water Run-on Control	Minimal upslope surfa	ice water diverted (<80%)	•
1anure Impacted Area Runoff C	ontrol				
4	Manure Impacte	d Area Runoff Control	All runoff controlled	•	
unoff Flow Path Between Facili	ty and Receiving Body of	Water			
Type of Yard Runoff Flow	Q		Vegetation Cover >	500/ 1/	7
Type of Taru Kulloli Flow	Channelled Flow	•	vegetation Cover >	50% Vegetated 🗸	7

ecial Considerations	
Special Considerations Detail	
0	
face Water Exposure Potential	
Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being a small slough or creek on private land but not a common body of water. Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being	
a common body of water with little human use (within 10 miles downstream). Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being a high use common body of water (recreation, water supply, etc.).	
Hazard Potential Score	5
+ Additional Pathway Score for Solid Manure Storage	6
+ Surface Water Pathway Score	24
x Exposure Potential Modifier	1.2
= Surface Water Risk Score	42.0
Low potential risk to the envir	onment.
ors ne	
arnings ckness Of Protective Layer is calculated correctly but doesn't match the overriden value from the Facility of 11.6.	



2001.12.11.187 Van Huigenbos, Henry - Van Huigenbos

Willow Creek, M.D. of Southern

SE-21-009-26-W4

Farms Ltd. Edit Address Book

(/AddressBook/ViewParty/3836?

returnUrl=https%3A%2F%2Fcfo2.nrcb.ca%2FRiskAssessment%2FViewRiskAssessment%2F2978)

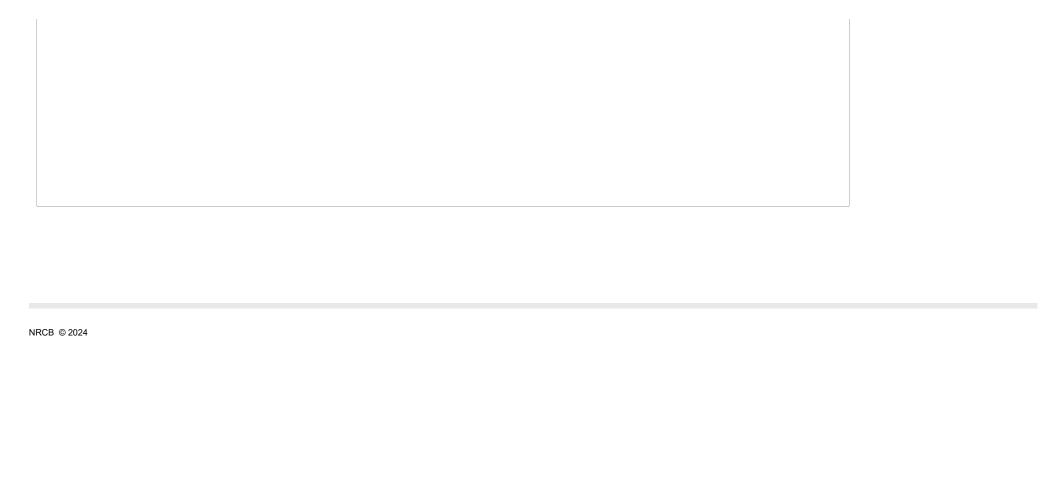
Risk Assessment Type	Application		
Facility Name	LA15045 Feedlot pens		
Date Of Site Visit	09/15/2015		
Visit Completed By	Karen Stewart		
Person Interviewed	Gerrit Van Huigebos		
Screening Completed By	Karen Stewart		
Date Scored	06/01/2016		
Reference Well for UGR	9731008		
Reference Well for PL	9731008		
AOPA Approved			
Locked			
Manure Type	Solid Manure Storage 🗸	4	
Annual Manure Amount (tonnes)	500 to < 20,000 🗸	1	
		Total Hazard Potential 5	

Storage Specifications			
Depth Of Storage Below Grade	0	Thickness Of Protective Layer Thickness Of Protective Layer is calculated	11.58
		correctly but doesn't match the overriden value from the Facility of 11.6.	
Depth To Top Of Protective Layer Below Grade	7.32	Depth Of Uppermost Groundwater Resource	20.42
Depth To Bottom Of Protective Layer Below Grade	18.9	Depth To UGR from the Bottom of the Facility	20.4
Jppermost Groundwater Resource (UGR)			
Depth to UGR (m) 8 - 30	•	Subsoil Texture Very Coarse V	8
Protective Layer(s) (PL) Between Bottom of Facility and Thickness of Protective >10 Layers (m)	Subsoil Texture Fine	Storage is Constructed into UGR over	erride 1
iner Type			
1	Liner Type	Meets AOPA liner or protective layer requirements	•
Water Wells			
	Page 1	of 1 100 v	Viewing 1 - 2 of 2

115633		Distance to Well (m)	Well Sealing Method	Depth to Top of Open	Surface Gradient to		Comments	Abandone	Outside 400m	Scor	
115633				Interval (m)	Water Well						
			No Seal/Unknown	0.00				V		0	
9731008	pens	76	Bentonite or Cement	19.80	Unknown					10	
4				Dage (of 1	100 🗸				Marriana	2 -62
				Page 1	of 1	100 🔻				Viewing 1	- 2 or 2
	10										
nfiltration Pot	ential										
Predo	ominant Soil Ty _l	pe Mediun	n 🔻	Averag	ge Annual Pr	ecipitation (mm)	400-600	•		4	
pecial Consid	erations										
zeciai Consta	crations										
			Special Conside	erations Deta	ail						
	0										
	0										
	0										
	0										
oundwater l		tial									
oundwater l	0 Exposure Poten	tial									
	Exposure Poten		100m of the confined fe	eeding opera	ation facility	being assess	sed.				
No water w	Exposure Poten	eted within 4	100m of the confined fe vithin 400m of the con					e confine	ed feeding	g operati	on
No water w	Exposure Poten	eted within 4					sed. Ireater than 100m from th	e confine	d feeding	g operati	on
No water wood or moon	Exposure Poten vells are comple re water wells a	eted within 4 are located v	vithin 400m of the con	fined feeding	g operation f	acility, but g		e confine	d feeding	g operati	on
No water wood or moon	Exposure Poten vells are comple re water wells a	eted within 4 are located v		fined feeding	g operation f	acility, but g		e confine	d feeding	g operati	on
No water wood or moon	Exposure Poten vells are comple re water wells a	eted within 4 are located v	vithin 400m of the con	fined feeding	g operation f	acility, but g		e confine	d feeding	g operati	on
No water wood or moon	Exposure Poten vells are comple re water wells a	eted within 4 are located v	vithin 400m of the con	fined feeding	g operation f	acility, but g		e confine	d feeding	g operati	on
No water wood or mood cility.	Exposure Poten vells are comple re water wells a	eted within 4 are located v	vithin 400m of the con	fined feeding	g operation f	acility, but g	reater than 100m from th	e confine Hazard Po			
No water wood or moon	Exposure Poten vells are comple re water wells a	eted within 4 are located v	vithin 400m of the con	fined feeding	g operation f	acility, but g	reater than 100m from th				
No water wood or mood cility.	Exposure Poten vells are comple re water wells a	eted within 4 are located v	vithin 400m of the con	fined feeding	g operation f	acility, but g	reater than 100m from th	Hazard Po	itential S	core 5	
No water wood	Exposure Poten vells are comple re water wells a	eted within 4 are located v	vithin 400m of the con	fined feeding	g operation f	acility, but g	reater than 100m from th	Hazard Po	itential S athway S	core 5	4
No water wonder or monocility.	Exposure Poten vells are comple re water wells a	eted within 4 are located v	vithin 400m of the con	fined feeding	g operation f	acility, but g	reater than 100m from th	Hazard Po	itential S athway S	core 5	4

No water body with 800m -					
Facility is located less than :	1m (in elevation) above t	he 1 in 25 year floodp	lain - high risk.		
None of the Above					
kelihood of Runoff Reaching a	Water Redy				
Relificou di Ruffoti Reactiffig a	vvater body				
		Page 1	of 1 100 🗸		Viewing 1 - 1 of 1
Water Body Name	Water Body Type	Ref	erence Point	Distance To Water Body (m)	Surface Gradient to Water Body
illow Creek	Creek	pens		160	Downslope
		Page 1	of 1 100 🗸		Viewing 1 - 1 of 1
Horizontal Distance to Water Body	7 100111	Slope of	and From Facility to Water Body	>12	4
face Water Runoff Predominant Soil Type	Medium	↓ Average	Annual Precipitation	400-600	4
rface Water Run-on Control	Surface \	Water Run-on Control	Minimal upslope s	urface water diverted (<80%)	•
5					
anure Impacted Area Runoff C	Control				
4	Manure Impacted	d Area Runoff Control	All runoff controlle	v	
noff Flow Path Between Facil	ity and Receiving Body of ^N	Water			
Type of Yard Runoff Flow	Channelled Flow		Vegetation Cover	>50% Vegetated 🔻	7

cial Considerations		
Special Considerations Detail		
0		
oca Water Evnecura Datential		
ace Water Exposure Potential		
ighest use surface water body (with the greatest number of types of users) loss small slough or creek on private land but not a common body of water.		
ighest use surface water body (with the greatest number of types of users) lo common body of water with little human use (within 10 miles downstream).		assessed
ighest use surface water body (with the greatest number of types of users) lends high use common body of water (recreation, water supply, etc.).	ocated within 800m of the confined feeding operation facility being a	assessed
	Hazard Potential Score	5
	+ Additional Pathway Score for Solid Manure Storage	6
	+ Surface Water Pathway Score	24
	x Exposure Potential Modifier	1.2
	= Surface Water Risk Score	42.0
	Low potential risk to the enviro	onment.
rs		
e		
nings kness Of Protective Layer is calculated correctly but doesn't match the overric	den value from the Facility of 11.6.	



2001.12.11.187 Van Huigenbos, Henry - Van Huigenbos

Willow Creek, M.D. of Southern

SE-21-009-26-W4

Farms Ltd. Edit Address Book

(/AddressBook/ViewParty/3836?

returnUrl=https%3A%2F%2Fcfo2.nrcb.ca%2FRiskAssessment%2FViewRiskAssessment%2F2977)

Risk Assessment Type	Application	•	
Facility Name	LA15037 Pole barn		
Date Of Site Visit	09/15/2015		
Visit Completed By	Karen Stewart		
Person Interviewed	Gerrit Van Huigebos		
Screening Completed By	Karen Stewart		
Date Scored	06/01/2016		
Reference Well for UGR	9731008	•	
Reference Well for PL	9731008	~	
AOPA Approved			
Locked			
Manure Type	Solid Manure Storage	•	4
Annual Manure Amount (tonnes)	500 to < 20,000	•	1
		Total Hazard Potential	5

Storage Specifications			
Depth Of Storage Below Grade	0	Thickness Of Protective Layer Thickness Of Protective Layer is calculated	11.58
		correctly but doesn't match the overriden value from the Facility of 11.6.	
Depth To Top Of Protective Layer Below Grade	7.32	Depth Of Uppermost Groundwater Resource	20.42
Depth To Bottom Of Protective Layer Below Grade	18.9	Depth To UGR from the Bottom of the Facility	20.4
Jppermost Groundwater Resource (UGR)			
Depth to UGR (m) 8 - 30	•	Subsoil Texture Very Coarse Very Coarse	8
Protective Layer(s) (PL) Between Bottom of Facility and Thickness of Protective >10 Layers (m)	subsoil Texture Fine	Storage is Constructed into UGR over	erride 1
iner Type			
1	Liner Type	Meets AOPA liner or protective layer requirements	~
Water Wells			
	Page 1	of 1 100 v	Viewing 1 - 2 of 2

Well ID	Reference Point	Distance to Well (m)	Well Sealing Method	Depth to Top of Open Interval (m)	Surface Gradient to Water Well	Comments	Abandone	Outside 400m	Score
15633	corner of barn	95	No Seal/Unknown	0.00	Unknown	decommissioned in 2015	V	0	
31008	corner of barn	100	Bentonite or Cement	19.80	Unknown			9	
									•
				Page	1 of 1	100 🗸		Vie	ewing 1 - 2 of 2
	9								
Itration Po	otential								
Pred	lominant Soil Ty	pe Mediur	m 🔻	Avera	ge Annual Pr	recipitation (mm)	•		4
cial Consi	derations								
			Special Consid	austions Dat	a:I				
			Special Colloid	crations bet					
	0								
	U								
ındıyatar	· Evnosuro Doton	ı+i al							
ınawater	Exposure Poten	itiai							
No water	welle eve eemenl	والمطالب المعام	100m of the confined f	iaadina anaw	ation facility	haing passaged			
			400m of the confined f				h	d faadina a	no de la co
one or mo ility.	ore water wells	are located i	within 400m of the cor	irinea reeain	g operation i	acility, but greater than 100m from the	ne confine	a reeaing c	peration
	oro water wells	are located i	within 100m of the cor	ofinad foodin	a operation t	a cility			
Jue of the	ore water wens	are located i	within 100m of the cor	iiiieu ieeuiii	g operation i	acility.			
							Hazard Pot	tential Sco	re 5
						+ Grour	ıdwater Pa	thway Sco	re 23
						x Expo	sure Potei	ntial Modifi	er 1.2
						\ LAPC	- 3. 0 1 0001	a ioaiii	1.2
						·- C	d+	Diek Ca-	
						= Gro	anawater	Risk Sco	r e 33.6

Body of water is known to b No water body with 800m -	low risk.					
Facility is located less than :	1m (in elevation) above t	he 1 in 25 year floodp	olain - high risk.			
None of the Above						
kelihood of Runoff Reaching a	Water Body					
termood of Ranon Redefining a	vvacer body					
		Page 1	of 1 100 🗸			Viewing 1 - 1 of 1
Water Body Name	Water Body Type	Re	erence Point	Dis	stance To Water Body (m)	Surface Gradient to Water Body
	Creek	corner of barn		361		Downslope
		Page 1	of 1 100 🗸			Viewing 1 - 1 of 1
		T age I	011			viewing 1 - 1 or 1
Horizontal Distance to Water Body	> 100III	Slope of	Land From Facility t Water Bod		•	4
rface Water Runoff						
Tace Water Runon						
Predominant Soil Type	Medium	• Average	Annual Precipitatio	on 400-600	•	4
rface Water Run-on Control						
	Surface \	Water Run-on Control	All unslone surf	ace water div	erted around the fac	ility 🗸
0	34.1466		All apslope surf	ace water div	erted dround the rac	inty v
inure Impacted Area Runoff C	Control					
	Manure Impacted	d Area Runoff Control	No yard runoff	(e.a. covered	facility) 🗸	
0			ito yara ranon	(eigi covered	identity)	
noff Flow Path Between Facil	ity and Receiving Body of V	Water				
Type of Yard Runoff Flow	Channelled Flow	~]	Vegetation Cove	>50% Ve	egetated 🗸	7

ecial Considerations	
Special Considerations Detail	
0	
face Water Exposure Potential	
Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being a small slough or creek on private land but not a common body of water. Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being a common body of water with little human use (within 10 miles downstream). Highest use surface water body (with the greatest number of types of users) located within 800m of the confined feeding operation facility being a high use common body of water (recreation, water supply, etc.).	assessed
Hazard Potential Score	5
+ Additional Pathway Score for Solid Manure Storage	6
+ Surface Water Pathway Score	15
x Exposure Potential Modifier	1.2
= Surface Water Risk Score	31.2
Low potential risk to the envir	onment.
ors ne	
arnings ckness Of Protective Layer is calculated correctly but doesn't match the overriden value from the Facility of 11.6.	

