

21 May 2015

Amec Foster Wheeler: WX0547614

Manitoba Conservation and Water Stewardship
Environmental Stewardship Division
Environmental Programs and Strategies
1007 Century Street
Winnipeg, MB, R3H 0W4

Attn: Warren Rospad
Contaminated Sites Program Specialist
Warren.Rospad@gov.mb.ca

**Re: Remediation Plan
Bulk Fertilizer Storage Facility
TransCanada Highway, Austin, Manitoba**

This letter is in response to Manitoba Conservation and Water Stewardship (MCWS)'s letter dated 4 March 2015 regarding "SE 33-11-11 WPM, Rural Municipality of North Norfolk, Bulk Fertilizer Storage Facility, TransCanada Highway, Austin, Manitoba; Designation under *The Contaminated Sites Remediation Act*." Amec Foster Wheeler Environment & Infrastructure (Amec Foster Wheeler) has prepared this Remediation Plan (RP) on behalf of Federated Co-operatives Limited (FCL) and Portage la Prairie Consumers Co-operative Limited (Portage la Prairie Co-op) for MCWS's review.

The site is located along TransCanada Highway, east of Austin, Manitoba (Henceforth referred to as 'the Site') and is currently occupied by the Portage La Prairie Coop bulk fertilizer and chemical storage facility. The facility includes four chemical storage bins, which were relocated to the northeast corner of the Site from the central area between 2011 and 2014. The office building was replaced with a new building in the eastern portion of the Site. The ammonia aboveground storage tank (AST) was removed and a chemical storage shed was constructed in its place after the 2011 monitoring program.

A Site Plan, Figure 1, is appended to this letter.

A Phase II Environmental Site Assessment (ESA) completed by Amec Foster Wheeler in 2002 identified fertilizer (nitrate-N & ammonia) impacted soils and groundwater. Historically, the highest concentrations of the identified fertilizers in groundwater were in monitoring wells TH1, TH3 and TH5, which were located in the vicinity of the loading pads, ammonia tanks and unloading pads respectively, although concentrations above the Ontario Ministry of Environment (MOE) criteria are present across the southeastern portion of the Site.

In 2003, a High Pressure Nutrient Injection system (HPNI) program was completed, however it was concluded that this process did not allow for continued management of potential rebound and reoccurring spills. As such, in 2005 a groundwater recirculation and amendment system involving the use of horizontal wells was constructed. Unfortunately, due to plugging and/or damage to the horizontal wells, this system has been rendered non-operational. Interpretation of laboratory and field data for each monitoring year since 2002 inclusive of 2007 indicates that seasonal precipitation results in an increase in dissolved nutrients. However, it appears that the application of carbohydrates during the peak fertilizer season substantially reduces those concentrations by August.

In September 2011, Amec Foster Wheeler conducted a groundwater monitoring event at the Site. The monitoring event included the monitoring of 11 groundwater monitoring wells. A total of 11 groundwater samples, including one field duplicate, were submitted for laboratory analysis of general nutrient parameters. Groundwater samples were not collected from monitoring wells TH6 due to insufficient water in the well, monitoring well TH16 was destroyed, and TH20 had a blockage present at approximately 1.6 m below grade level and could not be monitored.

Concentrations of nitrate-N above maximum acceptable concentrations for drinking water guidelines were observed in TH1, TH3, TH5, TH9, TH13, and TH14. Concentrations of nitrite-N above maximum acceptable concentrations for drinking water guidelines were observed in TH1, TH5, and TH14. Nitrate-N, nitrite-N, and ammonia concentrations appear to be increasing across the Site when compared to previous monitoring results, most notably in TH1, TH5, TH9, TH13 and TH14. The increase is likely occurring from minor spills associated with the loading and unloading activities of fertilizers at the Site.

Amec Foster Wheeler conducted an additional groundwater monitoring program in 2014 and included the monitoring and sampling of four existing monitoring wells for nutrients. Several wells were damaged since the 2011 monitoring event and could not be monitored or sampled. Concentrations of nitrate and nitrite measured in TH14 exceeded the maximum acceptable concentrations for drinking water guidelines. The groundwater samples from other wells also had a number of exceedances of the aesthetic objectives (AO).

A review of the cumulative groundwater results for the near-surface groundwater samples indicated that nitrite concentrations at TH14 increased by almost 20 times and the nitrate concentration more than doubled since the 2011 monitoring program. However, the concentration of ammonia at TH14 has decreased by approximately one half over the same time period. The increases in nutrient concentrations noted at the Site are likely the result of product releases associated with the storage and handling of fertilizers at the Site. A review of the deeper groundwater samples indicates that the nitrate, nitrite and ammonia concentrations have remained relatively unchanged since the 2011 monitoring event. Since the nutrient concentrations are relatively low in the deep groundwater samples when compared to the surficial groundwater samples, it appears that the groundwater in the underlying native soil has not been adversely affected by the site activities.

Amec Foster Wheeler has been tasked by FCL with further review of the current assessment data and preparing a long term remedial plan which will likely include further assessment. Amec Foster Wheeler is currently preparing a formal scope of work to conduct the 2015 environmental review and anticipates that any field work would be conducted in July/August 2015.

This RP will be further developed as part of Co-op's overall site management approach based on the results of the 2015 assessment in conjunction with the historical monitoring. A revision to the RP will be provided by May 2016.

Amec Foster Wheeler trusts that this meets your current requirements. If you require anything further, please contact Mr. Patrick Campbell of Amec Foster Wheeler (204-488-2997), or Mr. Sean Cruz at Federated Co-operatives Limited (306-244-3422).

Please direct all written correspondence to the following:

Portage la Prairie Consumers Co-operative Limited
c/o Federated Co-operatives Limited
401 – 22nd Street East, Box 1050
Saskatoon, SK, S7K 3M9, Canada
Attention: Mr. Sean Cruz
s.cruz@fcl.ca

Respectfully submitted,
Amec Foster Wheeler Environment & Infrastructure
A Division of Amec Foster Wheeler Americas Limited



Michael Bertram, P.Eng
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Associate Environmental Scientist
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Remediation Plan
Co-op Bulk Fertilizer Plant
TransCanada Highway #1, Austin, Manitoba
May 2015



Cc:
Sean Cruz
Environmental Advisor
Federated Co-operatives Limited

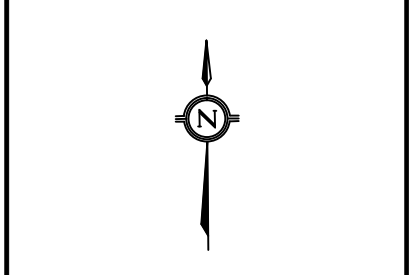
Kevin Dales
General Manager
Portage la Prairie Consumers Co-operative Limited

SITE PLAN

CLIENT:
 PORTAGE LA PRAIRIE CONSUMERS
 CO-OPERATIVE LIMITED

LEGEND:
 - - - - - APPROXIMATE PROPERTY LINE
 ● MONITORING WELL
 ● DESTROYED MONITORING WELL

NOTE:
 - SITE FEATURE LOCATIONS ARE APPROXIMATE.



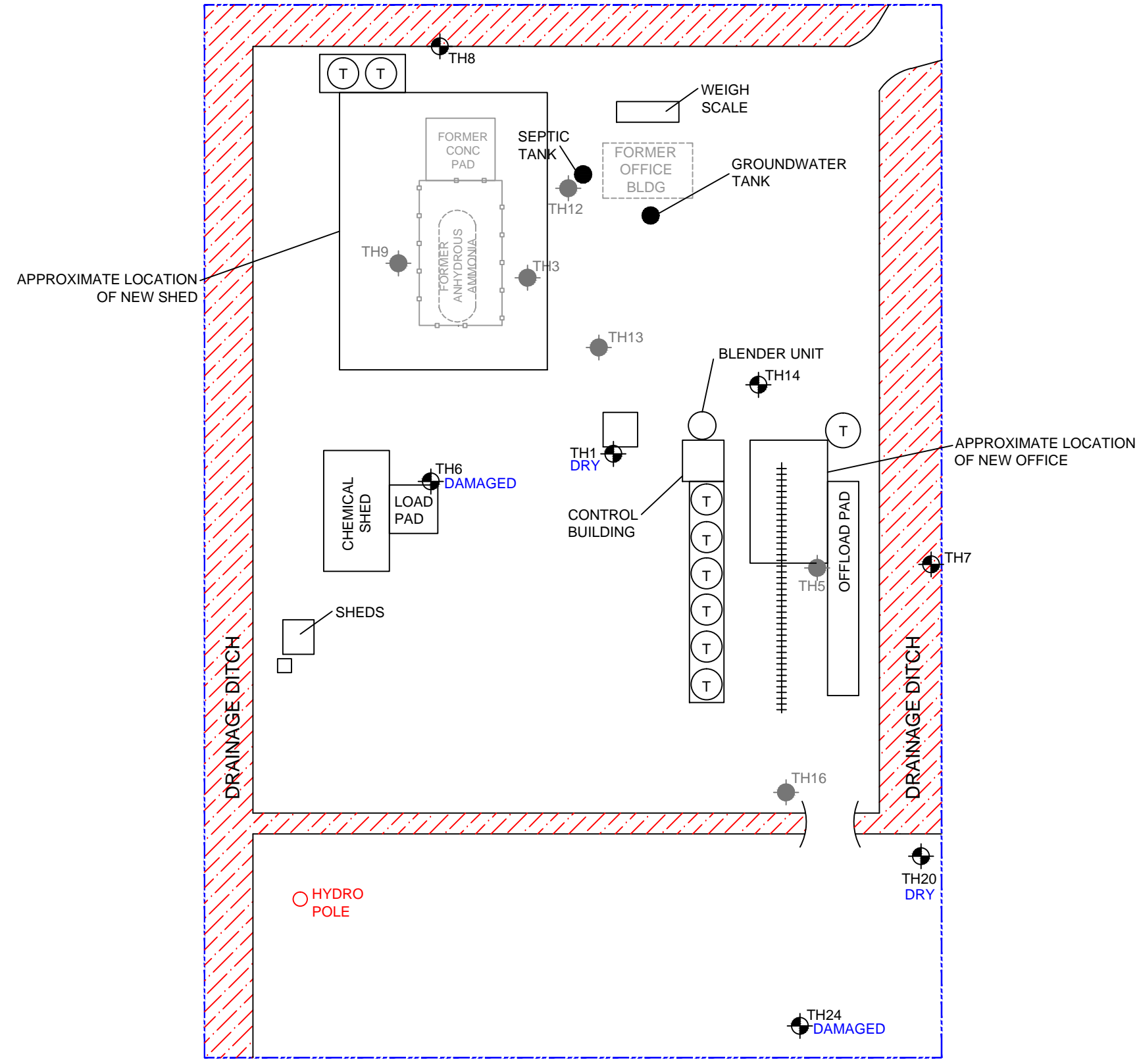
NO.	REVISION	DATE	BY

GROUNDWATER MONITORING PROGRAM
 AUSTIN, MANITOBA

MONITORING WELL LOCATION PLAN

SCALE: NOT TO SCALE
 DATE: JANUARY 2015
 DRAWN BY: MD
 PROJECT NO.: WX0547614

FIGURE 2



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