

ENVIRONMENTAL ASSESSMENT

Fuel Storage Tank Replacements Regina Research Facility, Regina, Saskatchewan

Conducted in Compliance with the
Canadian Environmental Assessment Act



Prepared for

Agriculture and Agri-Food Canada

March 2012

Environmental Assessment Screening Report

Fuel Storage Tank Replacements

Regina Research Facility,

Regina, Saskatchewan

Agriculture and Agri-Food Canada

Peggy Bainard Acheson

Senior Environmental Specialist

Public Works and Government Services Canada

Environmental Services, Western Region

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Cover Photo: Pump island with machine shop and garage in background (AMEC, 2011).

Table of Contents

1	INTRODUCTION	3
1.1	Canadian Environmental Assessment Act	3
2	PROJECT INFORMATION.....	3
2.1	Background & History	4
2.2	Site Description	4
2.3	Project Description	4
2.4	Project Requirements	6
2.5	Purpose and Justification	6
2.6	Regulatory Requirements.....	7
2.7	Project Scope	7
2.8	Scope of the Assessment.....	8
3	CONSULTATIONS	11
3.1	Public Consultations	11
3.2	Aboriginal & Stakeholder Consultations	11
3.3	Provincial Cooperation	11
3.4	Federal Coordination	11
4	ENVIRONMENTAL OVERVIEW	12
4.1	Biophysical Overview	12
4.1.1	Climate.....	12
4.1.2	Vegetation.....	12
4.1.3	Soils and Surface Geology	13
4.1.4	Surface Water	13
4.1.5	Groundwater Resources.....	13
4.1.6	Amphibians/Reptiles	14
4.1.7	Bird Species.....	14
4.1.8	Mammals	14
4.1.9	Species at Risk	14
4.2	Resource and Land Use Overview	15
4.2.1	Historical Land Use	15
4.2.2	Heritage Resources	15
5	EVALUATION OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	15
5.1	Valued Ecosystem Components	16
5.1.1	Air Quality	16
5.1.2	Weather	16
5.1.3	Soils	16
5.1.4	Groundwater Resources.....	19
5.1.5	Vegetation.....	19
5.1.6	Species at Risk	20
5.1.7	Mammals	20
5.1.8	Amphibians/Reptiles	20
5.1.9	Bird Species.....	20
5.1.10	Non-Renewable Resources.....	20
5.2	Valued Social Components	21
5.2.1	Aesthetics	21
5.2.2	Human Health & Safety	21
5.3	Public Concern	22
5.4	Hazardous Waste	22
6	SIGNIFICANCE AND MITIGATION (s.16.(1); s. 20.(2))	23
7	ACCIDENTAL EFFECTS	31
8	SIGNIFICANCE AND RESIDUAL EFFECTS	31
9	CUMULATIVE EFFECTS	31
10	MONITORING AND FOLLOW UP	32
11	CONCLUSION.....	32
12	REFERENCES	32

12.1	Site Visit.....	32
12.2	Documents.....	32
12.3	Personal Communication	33
12.4	Appendices	33
13	SIGNATURES	Error! Bookmark not defined.
14	CEAA DETERMINATION (s. 20.(1))	Error! Bookmark not defined.

Tables

Table 1: CEAA Registry Information	1
Table 2: Project Components.....	7
Table 3: Checklist for Scoping Valued Ecosystem and Social Components.....	10
Table 4: Summary of Mitigation Measures & Significance of Residual Effects	24

Table 1: CEAA Registry Information

Project Title:	Fuel Storage Tank Replacements
Location:	Regina Research Facility, Regina, Saskatchewan
Project/Activity Summary:	The project involves removing the existing underground storage tanks and replacing them with aboveground storage tanks.
Project Type:	Undertaking in relation to a physical work
EA Type:	Screening
EA Start Date:	December 30, 2011
Prepared For:	Agriculture and Agri-foods Canada
Prepared By:	Peggy Bainard Acheson, Senior Environmental Specialist, Public Works & Government Services Canada, Environmental Services
Project No.:	R.049703.002
Responsible Authority (RA):	Agriculture and Agri-foods Canada
RA Sect. 5 CEAA trigger:	Proponent
Other Responsible Authority(s) (RA(s)):	N/A
Other RA Sect. 5 CEAA Trigger(s):	N/A
CEAR Reference Number: Date:	11-01-65675 January 12, 2012

RA Contact Name:	Lina Salem-Masri
Title:	Environmental Engineer Environmental and Engineering Services
Address:	960 Carling Avenue, Building 12, CEF, Floor 3, Room 302 Ottawa, ON K1A 0C6
Phone: Fax:	(613) 715-5204 (613) 759-7799
Email:	Lina.Salem-Masri@agr.gc.ca

EA Contact Name:	Peggy Bainard Acheson
Title:	Senior Environmental Specialist Environmental Services – Winnipeg Public Works and Government Services Canada
Address:	P.O. Box 1408 Winnipeg, MB R3C 2Z1
Phone: Fax:	(204) 984-4029 (204) 984-7701
Email:	peggy.bainardacheson@pwgsc-tpsgc.gc.ca

1 INTRODUCTION

1.1 *Canadian Environmental Assessment Act*

The Federal government is required to undertake Environmental Screenings of projects in accordance with the *Canadian Environmental Assessment Act* (CEAA). CEAA states responsibilities and procedures for the environmental assessment of projects involving the Federal government. The Act also establishes a process for determining the environmental effects of projects. CEAA is applicable to any project where a federal authority performs one or more of the following CEAA triggers in respect of a project:

- is the proponent of a project (*Section 5.(1)(a)*);
- grants money or any other form of financial assistance to the project (*Section 5.(1)(b)*);
- leases, sells or disposes of land to enable a project to be carried out (*Section 5.(1)(c)*); or
- exercises a regulatory duty in relation to a project, such as issuing a permit or license, that is included in the Law List prescribed by the regulations to the Act (*Section 5.1(d)*).

The proposed undertaking is a project as defined under the CEAA. The Department of Agriculture and Agri-foods Canada (AAFC) is the Responsible Authority for the project with a duty to ensure that an environmental assessment under the CEAA is completed and mitigation measures are implemented. A review of the *Exclusion List Regulations* indicated that the project could not be excluded, as the new aboveground storage tanks to be installed will exceed 4000 litres.

Public Works and Government Services Canada (PWGSC), Environmental Services, Western Region was contracted to conduct an environmental assessment on behalf of AAFC to ensure that potential environmental impacts associated with removal of the existing underground storage tanks (USTs) and installation of the new aboveground storage tanks (ASTs) are assessed and potential environmental impacts mitigated.

2 PROJECT INFORMATION

AAFC proposes to replace the USTs that currently service the Regina Research Facility in Regina, Saskatchewan (Figures 1 and 2). The tanks require replacement as the existing underground storage tanks (USTs) will soon no longer meet the Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations under the Canadian Environmental Protection Act (CEPA) as of June 2012. The USTs will be removed and replaced with new aboveground storage tank (AST) systems, which will consist of a gasoline storage tank and a diesel storage tank.

Figures, drawings and photos are provided in Appendix A.

2.1 Background & History

The two 4500L existing USTs were installed at the RRF in 1990 with the purpose of supplying fuel for vehicles and farm machinery. The USTs and a pump island are located between the machine shop and garage and the cereals building (Figure 3, Photo 1).

A Phase III Environmental Site Assessment (ESA) conducted by KGS in March 2010, indicated that a small amount of hydrocarbon impacted soil (ethylbenzene and PHC Fraction F1) is located in the vicinity of the concrete pad over the USTs. The estimated volume of impacted soil is 390 m³. Based on groundwater samples collected from the monitoring wells none contained concentrations of BTEX or PHC Fractions F1 to F4 that were above laboratory detection limits (except for benzene collected from TH09-11) or exceeded the applicable Water Quality Guidelines for the protection of community water and the protection of freshwater aquatic life. Shallow groundwater at the UST area was not impacted.

A Phase I Environmental Site Assessment (ESA) conducted by UMA Engineering in 1994 indicated that the UST's located south of the garage building were installed in 1989 and were in compliance with current regulations (AECOM, 2009). The report also indicated that these tanks replaced two older aboveground tanks which were installed in 1963. It was documented that there were no signs of hydrocarbon contamination in the soil surrounding the tanks at the time the original tanks were removed; however, soil and groundwater testing was not completed. The two empty AST's had contained diesel and were located near the Cereals building. There were no signs of surficial staining in the vicinity of these tanks. Further investigation of these areas was not recommended.

2.2 Site Description

The AAFC Regina Research Facility encompasses approximately 60 hectares of land in the southeast section of Regina (Figure 2). It is bordered by agricultural lands to the south and east, the Westcana Country Club Golf Course to the north, and the Saskatchewan Institute of Applied Science and Technology (SIAST) Regina Campus to the west.

The main complex consists of 10 buildings and the vehicle fuelling area (Figure 3). Buildings in the vicinity of the tank site include the Machine Shop and Garage and the Cereals Building. The remainder of the buildings are no longer in service. An unused AST (Photo 2) was also present in the Site's yard and is described as being the last one of four delivered to the site to be stored until they could be transported to other AAFC facilities to be installed (AMEC, 2011).

2.3 Project Description

The existing USTs will be permanently withdrawn from service and replaced with two new ASTs; one for diesel and the other for gasoline. Withdrawing the tanks from service will include excavating the concrete pad and fill material above the UST and piping, draining the diesel fuel, removing and disposing of the tank and piping in accordance with applicable legislation, and site rehabilitation (excavation area will be backfilled and compacted, and surface material will be laid over top to match the existing). The ASTs will be installed prior to the decommissioning and removal of the USTs to ensure that the farm operations will have a continuous fuel supply. Once the new ASTs are in place, fuel from the USTs will be transferred to the new ASTs.

The consultant contracted to oversee the project will complete the following throughout the decommissioning and removal of the UST system:

- Professional engineer supervision for permanent withdrawal activities in accordance with the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*
- Monitoring of soil quality during excavation and management of excavated materials (soil segregation and stockpiling). Soils will be field screened for signs of potential contamination which will include visual assessment, olfactory observations, and measurement of soil petroleum vapour concentrations using a Photo Ionization Detector. Soils will be segregated into different piles based on field observations (e.g. one pile for visible hydrocarbon product and one pile for non-impacted material).
- Collecting soil samples from each stockpile to confirm soil quality
- Collecting soil samples along the walls and base of the tank excavations (tank nest) to confirm soil quality. A total of six samples will be taken (one from all four walls, the base and a duplicate sample)
- Preparing geotechnical specifications for backfill materials and paving at the excavation site
- Preparing a ***Decommissioning and Soil Sampling Report*** summarizing removal activities and soil sampling results
- Preparing technical specifications for the new AST system
- Conducting a site visit following installation of the AST system and preparation of an ***AST System Installation Inspection Report*** which will summarize the evaluation of secondary containment for the two aboveground tanks and final site visit findings

If samples taken within the tank nest and excavated backfill materials reveal that hydrocarbons are in exceedance of CCME's Soil Quality Guidelines for Agricultural Land Use, impacted materials/soils will be removed and disposed of in accordance with applicable legislation. If any existing contamination is present beyond the tank nest in the vicinity of the USTs it will be removed while the excavation is open.

The project is scheduled to commence in the spring of 2012 and it is anticipated that it will take approximately three months to complete.

Existing USTs

A Storage Tank Assessment Report conducted by AMEC in 2011 indicated that the horizontal, single-walled, fibreglass tanks have volumes of 4500-L respectively. The leak detection and overfill alarm electrical system was not functioning at the time of the site visit and did not appear to be operational. The electrical monitoring system does not have a certification mark certifying conformity with either ULC/ORD-C58.12, Leak Detection Devices (Volumetric Type) for Underground Flammable Liquid Storage Tanks, or ULC/ORD-C58.14, Non-volumetric Leak Detection Devices for Underground Flammable Liquid Storage Tanks as required in STSR, Section 18. However, the conduct of annual tank precision leak detection tests since the coming into force of the regulations and the presence of the monitoring wells as a leak detection device complies with the regulations. A copy of the compliance audit is provided in Appendix B.

A drawing (Figure 4) showing the existing site plan is provided in Appendix A.

Proposed ASTs

The new ASTs will consist of two double-walled, above-ground tanks, one for diesel and one for gasoline. The tank volumes will be smaller than the existing tanks in order to conform to the site requirements. It is anticipated that they will be installed immediately adjacent to the existing tanks. The tanks will be installed on a 5m x 6m tank pad complete with impact protection. The tanks will be designed and installed in accordance with all applicable codes, regulations, and best practices, including but not limited to the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, *CCME Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum and Allied Petroleum Products*, and the *National Fire Code of Canada*, which will include corrosion protection, secondary containment, and overfill protection.

A drawing (Figure 5) showing the proposed site plan and the new tank fitting details is provided in Appendix A.

2.4 Project Requirements

The placement of temporary structures (i.e. trailers and sheds) in the parking lot may be required to accommodate the project. Temporary trailers would be used to provide office space for contractors and storage sheds would be used to secure construction materials. The need for temporary structures will be determined during the final phase of planning.

A chain link fence will be required to secure the excavation area pending laboratory results to determine soil quality.

Construction Equipment/Resources

The project will require the use of heavy machinery such as graders and excavators. Petroleum products such as gasoline, diesel fuel and lubricants will be required to operate heavy machinery, and will also be required to commission the new AST. The project will also require the use of quarried materials such as aggregate to backfill the excavated area, metal products (tank) and aggregate to lay over the excavated area.

2.5 Purpose and Justification

Under the new *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* (Canadian Environmental Protection Act) all single-walled underground tanks were to be precision leak tested by a third party by June 12, 2010, and immediately following that a leak detection and/or monitoring program was to be implemented. The regulations also require the removal of all single-walled USTs by June 12, 2012, with the exception of tanks that have cathodic protection plus either leak detection, groundwater monitoring wells, or vapour monitoring. These requirements are mandatory because these types of systems pose a greater risk to the environment due to the fact that they lack double-walls or any other form of secondary containment. In the event of a leak or spill, the product is released directly into the surrounding soil and groundwater and can migrate over a considerable distance and cause extensive long-term damage to the environment (Environment Canada). The conversion of USTs to ASTs has become an industry standard based on the ease of maintenance and monitoring and the immediate visual indications of leaks or releases.

The existing USTs are not in compliance with current regulations because they are single-walled and the leak detection and overfill alarm electrical system was not functioning. As the USTs are nearing the end of their twenty-year life expectancy (increasing the potential for leaks), the preferred option is to permanently withdraw the USTs from service and replace them with ASTs that meet all regulation and code requirements.

2.6 Regulatory Requirements

Key regulatory requirements and applicable policies and good practices that apply to the project include, but are not limited to:

- Canada-Wide Standards (CWS) for Petroleum Hydrocarbons (PHC) in Soil
- Canadian Environmental Assessment Act (CEAA) and associated Regulations
- Canadian Environmental Protection Act (CEPA)
- CCME Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products
- CCME Soil Quality Guidelines for the Protection of Environmental and Human Health
- Hazardous Substances and Waste Dangerous Goods Regulations (SK)
- Installation Code for Oil Burning Equipment - CAN/CSA-B139-04, (CSA 2004)
- National Fire Code of Canada (NFCC 2005)
- Occupational Health and Safety Act and Regulations (SK)
- Risk-Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites
- Species at Risk Act (SARA)
- Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (under CEPA)

2.7 Project Scope

In accordance with the Act, the project was scoped to include all undertakings and/or activities in relation to the physical works. The scope of the project includes the three principal phases of the project, installation of the new ASTs, decommissioning and removal of the existing USTs, and site rehabilitation.

Project Components are discussed in Table 2 below.

Table 2: Project Components

Project Phase	Principle Project Activities
Installation of ASTs	<ul style="list-style-type: none"> • Install new ASTs and piping in accordance with the applicable codes and regulations. • Transfer fuel from USTs to the ASTs
Decommissioning/Removal of Existing UST	<ul style="list-style-type: none"> • Determine location of buried utilities near the planned excavation areas (to be completed by contractor)

Project Phase	Principle Project Activities
	<ul style="list-style-type: none"> • Remove pumps and concrete overlying the USTs • Excavate to a depth necessary to expose USTs • Stockpile excavated material on tarps and contain until laboratory results determine soil quality (it is anticipated that a 24 hour rush will be placed on the laboratory results to minimize the amount of time stockpiled soil will be left sitting). • Purge tanks of vapours to less than 10% of the lower flammability limit and check vapours with a combustible gas meter. • Remove USTs and associated piping • Remove any residual liquids and sludge from the tanks/piping and dispose of appropriately • Clean the interior of the USTs using a pressure washer and appropriate solvent, if necessary. • Cut the tank into smaller pieces and dispose of in accordance with the applicable regulations and codes of practice. • Collect soil samples within tank nests and from excavated material and submit for laboratory analysis • Secure site until laboratory results are confirmed • If soil is impacted, delineate extent of contamination and remove and dispose of impacted soil in accordance with applicable legislation
<p>Site Rehabilitation</p>	<ul style="list-style-type: none"> • Backfill excavated areas with clean imported fill or with existing fill material as long as it is within CCME's Soil Quality Guidelines for residential land use • Compact and grade area • Restore to original condition with aggregate surface material to match existing

2.8 Scope of the Assessment

The scope of the assessment identifies environmental components to be considered and the potential effects on these components resulting from the proposed project. Environmental components were identified through discussions with personnel familiar with the site and through a review of historical environmental reports for the Regina Research Facility.

Changes to the biophysical environment due to the project, as well as any resultant effects on the socio-economic environment were considered by scoping for appropriate Valued Ecosystem Components (VECs) and Valued Social Components (VSCs). For this project VECs were selected based on ecological importance and/or value to the existing environment, the relative sensitivity of environmental components to project influences and their relative social, cultural, or economic importance. VSCs include components of the socio-economic environment that

may be affected by a change in the environment as a result of the project. VECs and VSCs for this project were determined using the Checklist below.

Environmental effects considered are those that may impact air quality, weather, soil, groundwater, non-renewable resources, rare and endangered species, aesthetics, human health and safety, and hazardous waste.

Temporally this assessment includes installation and commissioning of the new ASTs, decommissioning and removing the existing USTs, site rehabilitation, and operation of the new system. Decommissioning of the new ASTs is not included in the scope of this assessment, as the new tanks are anticipated to have a life expectancy of approximately 20 years. However, at the end of their useful life an environmental assessment may need to be completed to assess potential environmental impacts.

It is anticipated that the project will commence in February 2012 and will be completed by March 31st, 2012.

Spatially this assessment includes the Regina Research Facility property and areas within 30 metres of the project site.

Table 3: Checklist for Scoping Valued Ecosystem and Social Components					
Valued Ecosystem Components (VECs)			Valued Social Components (VSCs)		
Physical and Biological Components - attributes to consider	Component is present in the scoped area¹	Component/Project Interaction²	Socio-Economic Components - attributes to consider	Component is present in the scoped area	Component/Project Interaction
Air Quality - dust, emissions	Y	P	Aesthetics – non-hazardous waste	Y	P
Weather/Climate/Microclimate - wind, precipitation, temperature, inversion, fog	Y	E	Land use – Official Plan, zoning		
Soil - erosion, compaction, settling, stability, contamination	Y	P	Transportation Network		
Geology/Geophysics - fractures, chemical reactions, subsidence			Navigation		
			Recreation		
			Tourism		
Permafrost			Heritage Resources		
Surface Water - quantity, quality, shore line/bottom alteration, flow variation, flood, drought, current, tides, wave action, littoral process			Aboriginal – traditional lands/resources		
			Agriculture		
Groundwater - quantity, quality, flow, water table	?	P	Aquaculture		
Renewable & Non-renewable resources	Y	P	Human Health & Safety – physical hazards, noise	Y	P
Vegetation - quantity, type, quality, successional change			Potable well water		
			Employment		
Bio-Diversity			Economy/Taxes		
Rare/Endangered Species (SARA)	?	P	Public Concern	Y	P
Mammals - population change, productive capacity, habitat modifications (i.e. nesting, breeding, feeding, etc.)	Y	Y	Hazardous Waste	Y	P
Fish/Fish Habitat - population change, productive capacity, habitat modifications (i.e. nesting, breeding, feeding, etc.)					
Amphibians & Reptiles - population change, productive capacity, habitat modifications (i.e. nesting, breeding, feeding, etc.)	Y	Y			
Birds - population change, productive capacity, habitat modifications (i.e. nesting, breeding, feeding, etc.)	Y	Y			
Migratory Corridor/Buffer Zone					
Estuaries/Salt Marshes					
Wetlands/Bogs/Ponds - area changes, productive capacity, water quantity, water quality, aquatic vegetation					

¹ Yes=Y Unknown=? No=Blank

² Effect of project on environment=P, Effect of environment on project=E

3 CONSULTATIONS

3.1 Public Consultations

As required under the Act the project was registered on the Canadian Environmental Assessment Public Registry (CEAR) to provide means for the public to access the details of the environmental assessment. The CEAR number is 11-01-65675 and the Notice of Commencement can be found at: <http://www.ceaa.gc.ca/050/details-eng.cfm?evaluation=65675>.

3.2 Aboriginal & Stakeholder Consultations

As the Responsible Authority AAFC has an obligation to consult with aboriginal peoples if the proposed project will have an impact on established (or potential) aboriginal or treaty rights, settled or unsettled land claims, or self-government agreements³. Given the nature, scope and location of the proposed project, no aboriginal consultation is required; as it is unlikely the project will have any impacts on aboriginal rights.

3.3 Provincial Cooperation

The Canada-Saskatchewan Agreement on Environmental Assessment Cooperation provides the framework for federal-provincial cooperation for the environmental assessment of proposed projects subject to both the *Canadian Environmental Assessment Act* and *The Environmental Assessment Act* of Saskatchewan. This process is intended to ensure that projects that require a review under both federal and provincial environmental assessment legislation will undergo a single, cooperative assessment, meeting the legal requirements of both governments. Given the small size and scope of this project it was not considered necessary to contact the Province of Saskatchewan to review the project.

Contact was made with Jana Lung, an Environmental Engineer in the Industrial Branch of the Ministry of Environment. Ms. Lung, indicated that permits may need to be obtained for the decommissioning of the existing underground tanks and the installation and commissioning of the new aboveground tanks under the Saskatchewan Hazardous Substances and Waste Dangerous Goods Regulations. Contact information is provided in Section 12.3.

3.4 Federal Coordination

In accordance with the Federal Coordination Regulations established under CEAA, the project description was forwarded to Environment Canada (EC) to determine any potential decision-making responsibilities, expert advice, or interest in the project. A response was received by EC on February 8, 2012 stating that they are not a responsible authority under the CEAA for the project, but are able to provide specialist or expert information or knowledge pursuant to subsection 12(3) of CEAA. However, EC does not intend to formally participate in the environmental assessment review of this project unless specifically requested by the RA. EC noted that compliance with the Federal *Fisheries Act* is mandatory. EC also referred to the new storage tank regulations under the *Canadian Environmental Protection Act*, namely the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* that came

³ CEAA, Ministerial Guidelines on Assessing the Need for and Level of Public Participation in Screenings under the CEAA

into force in 2008 and noted that compliance is mandatory. EC noted that the Regulations apply to storage tank systems owned by federal entities. Requirements are outlined for the withdrawal from service and removal of some existing storage tank systems as well as requirements for new storage tank installations. New installations must meet a standard and must be done according to certain clauses of the Canadian Council of Ministers of the Environment (CCME) *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products*. The Regulations refer to portions of the following parts of the Code of Practice:

- Part 3: Design and Installation of New Aboveground Storage Tanks
- Part 4: Design and Installation of New Underground Storage Tank Systems
- Part 5: Design and Installation of New Piping Systems
- Part 8: Operation and Maintenance

In addition there are number of requirements governing who may design and install systems as well as new technical requirements. All systems, new and existing, must have a product transfer area designed to contain spills. All storage tank systems must be identified directly with EC. Fuel suppliers are not allowed to deliver fuel to a storage tank that is federally regulated unless the identification number is displayed. Identification can be acquired either by using the online identification database available through www.ec.gc.ca/st-rs. The proponent is also reminded of Section 30 of the Regulations which outlines an operator's requirements for an emergency plan.

Legislative requirements that the project must adhere to under the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* and *CCME's Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products* and the Saskatchewan Hazardous Substances and Waste Dangerous Goods Regulations, have been incorporated into section 5 of the report, Environmental Impacts and Mitigation Measures.

Copies of all correspondences received are included in Appendix C.

4 ENVIRONMENTAL OVERVIEW

The project site is located in the Moist Mixed Grassland ecoregion of the Prairies ecozone and is comprised of the northern extension of open grasslands in the Interior Plains of Canada.

4.1 Biophysical Overview

4.1.1 Climate

The mean annual temperature is approximately 2.5°C. The mean summer temperature is 15.5°C and the mean winter temperature is -11°C. The mean annual precipitation ranges 350-400 mm. (Environment Canada).

4.1.2 Vegetation

Native vegetation is relegated to non-arable pasturelands, dominated by spear grass and wheat grass, and a variety of deciduous shrubs including buckbrush, chokecherry, wolf

willow, and saskatoon. Patches of scrubby aspen, willow, cottonwood, and box-elder occur to a limited extent on shaded slopes of valleys, on river terraces, and ringing nonsaline depressional sites covered with meadow grasses and sedges. Local saline soil areas support alkali grass, wild barley, red samphire, and sea blite. (Environment Canada)

There appears to be little vegetation in the immediate vicinity of the pump island and tanks. There are shelterbelt trees located in and around the Research Facility complex. The rest of the area in the vicinity of the Facility appears to be cultivated land.

4.1.3 Soils and Surface Geology

The region is composed of upper Cretaceous sediments and covered almost entirely by hummocky to kettled glacial till and level to very gently undulating, sandy to clayey lacustrine deposits. Although Dark Brown Chernozemic soils are dominant, significant areas of Solonchic soils occur, particularly in eastern Alberta.

The site is located in a glaciolacustrine plain which consists of sand, silt and clay deposited in a glacial lake. Regina is approximately 580 m above sea level with a glacial drift thickness of approximately 30 m. This drift is underlain by the Bearpaw Formation which is approximately 250 m thick and consists of grey, non calcareous silt and clay with a 20 m seam of sand approximately 140 m above the base of the formation. Typically at Regina, the drift consists of silt underlain by oxidized till, followed by un-oxidized till and another layer of oxidized till. Local and perched groundwater is common in the drift (Saskatchewan Energy and Mines Surficial Geology map).

Observations from the Phase II investigation indicated that the subsurface soils encountered on the Site generally consisted of a sequence of topsoil and/or gravel from the surface to a maximum depth of 0.15 m below grade, overlying high plastic clay to a maximum depth of 4.9 m, overlying medium plastic clay to a depth 4.6 m, the maximum depth of investigation. Bedrock was not encountered in the boreholes advanced on this site (AECOM, 2009).

4.1.4 Surface Water

The site slopes towards the run-off channel which runs across the site from the southeast to the northwest and flow into Wascana Creek. Wascana Creek is approximately 100 m to 500 m north of the site at the various points along the north boundary of the site. Surface runoff from the site follows overland drainage patterns and is directed to ditches that surround the site (AECOM 2009).

4.1.5 Groundwater Resources

According to the Phase I ESA (AECOM, 2009) groundwater flow was not determined during the Phase II investigation of the Site conducted by AECOM, 2010 due to limited groundwater information. However, based on the local topography and the close proximity of Wascana Creek the groundwater flow was estimated to be towards the northeast.

A water well search completed by the Government of Saskatchewan identified thirty-seven (37) wells located within a 1.6 km radius of the Site. Twenty (20) of these wells are located on

adjacent quarter sections within 800 m of the Regina facility property boundary. Four (4) of the wells are located within section 4-17-19-W2M. All of these wells are reported as being used for domestic, municipal or industrial purposes, excluding one reported as for research purposes. The depth to groundwater was not recorded in any of the wells listed. Data provided by the Government of Saskatchewan did not indicate groundwater flow direction (AECOM, 2009).

4.1.6 Amphibians/Reptiles

Saskatchewan has seven species of amphibians, all of which have habitat ranges in southern Saskatchewan (Canadian Amphibian and Reptile Conservation Network). These species include Barred Tiger salamander, Plains Spadefoot toad, Canadian toad, Great Plains toad, Boreal chorus frog, Wood frog and the Northern Leopard frog. The Great Plains toad is listed as a species of special concern on Schedule 1 of the Species at Risk Act (SARA), but the preferred range is outside of the project area. The Northern Leopard frog is listed as a species of special concern on Schedule 1 of SARA; however, the site does not represent suitable habitat for this species.

Twelve species of reptiles are known to inhabit Saskatchewan, nine of which have habitat ranges in southern Saskatchewan (Canadian Amphibian and Reptile Conservation Network). These species include Snapping turtle, Western Painted turtle, Eastern Yellow-Bellied Racer, Smooth Greensnake, Bullsnake, Wandering Gartersnake, Plains gartersnake, Plains Hog-nosed snake, and the Prairie Rattlesnake. The Eastern Yellow-Bellied Racer is listed as Threatened on Schedule 1 of SARA; but the preferred range is outside of the project area.

4.1.7 Bird Species

Many areas of the Moist Mixed Grassland ecoregion provide major breeding and nesting habitat for migratory birds including waterfowl and prairie species. Examples of bird species with habitat ranges surrounding Saskatoon include the Northern Harrier, Swainson's Hawk, Sharptailed Grouse, Willet, Upland Sandpiper, Marbled godwit, Franklin's Gull, Black Tern, Short-eared owl, Horned Lark, Sedge Wren, and sparrows (Saskatchewan Watershed Authority).

Approximately 196 species of birds have been recorded in the Wascana Creek area of Regina (Nature Regina).

4.1.8 Mammals

White-tailed deer, pronghorn antelope, coyote, rabbit, ground squirrel, and a variety of small mammals are common in the region. However, the site would only provide cover for small mammals such as rodents.

4.1.9 Species at Risk

Promulgated in 2003 the purpose of the Species at Risk Act (SARA) is to prevent wildlife species from being extirpated or becoming extinct, to provide for wildlife recovery, and to manage species of special concern. In addition, SARA has certain implications for environmental assessment under CEAA. Specifically, the definition of "environmental effect" in

the CEAA has been amended as follows: “. . . any change that the project may cause in the environment, including any change it may cause to a listed wildlife species, its critical habitat or the residences of individuals of that species.” SARA also requires notification of the competent minister if a proposed project is likely to affect a listed wildlife species or its critical habitat. An EA being carried out on a project that may affect a listed wildlife species or its critical habitat must identify potential adverse effects on the listed species, implement measures to avoid or lessen adverse effects, and must include monitoring of the effects on the listed species upon implementation of the project.

A desktop review of potential SARA-listed species that have ranges in the project area revealed one species at risk listed on Schedule 1; the Common Nighthawk (*Chordeiles minor*) is listed as Threatened. This species breeds throughout Alberta and Saskatchewan, and south of the tree line in Manitoba. It nests in a wide range of open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks.

Based on this habitat description provided on the SARA Public Registry the habitat in the vicinity of the tanks and pump island is unsuitable. In addition, the project is scheduled to be undertaken during the winter months when this species would be in its winter habitat in South America.

4.2 Resource and Land Use Overview

4.2.1 Historical Land Use

Aerial photos taken in 1965, 1978, 1989, 1993 and 2006 were examined as part of the Phase I ESA (AECOM, 2009). The 1965 photo showed the site already being used for agricultural purposes and building developed at the Main Complex. Crop plots can be seen throughout the property to the south of the Main Complex. The wastewater lagoons have been constructed and have standing water in them. The golf course has been developed north of the site. There also appears to be a farm yard west of the Main Complex. The remainder of the surrounding property is agricultural.

4.2.2 Heritage Resources

The Saskatchewan Heritage Resources Branch was not contacted to determine the potential for heritage resources surrounding the project site, as the site is previously disturbed and construction activities will only be occurring within paved/gravel areas of the Research Farm.

5 EVALUATION OF ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

This section addresses the potential environmental effects of the proposed project and identifies mitigation measures. The potential for project interaction with the VECs and VSCs identified in Table 3 was analyzed based on: information provided by the proponent; a review of project related activities; an appraisal of the environmental setting; temporal and/or spatial conflict; personal knowledge and professional judgment. The analysis also considers accidental and cumulative effects. Table 5 below outlines mitigation measures for the selected valued ecosystem/social components.

5.1 Valued Ecosystem Components

5.1.1 Air Quality

Air quality may be affected during the project due to emissions from equipment, and dust produced during excavations.

Mitigation measures to minimize impacts to air quality include the following:

- Minimize aerial emissions with the use of filters
- Maintain equipment in good working order
- Avoid unnecessary idling of vehicles and/or heavy machinery
- Employ non-toxic dust control measures as required (e.g. water)

With the implementation of mitigation measures and because construction activities will be short-term and localized, impacts to air quality are anticipated to be negligible.

5.1.2 Weather

Weather events such as high winds, heavy precipitation or thunderstorms could delay the project and may cause injuries or loss of life.

The follow mitigation measures should be implemented to prevent injuries or loss of life:

- Contractor must prepare an emergency contingency plan to deal with unexpected severe weather quickly and effectively
- Project site should be shut down for the duration of extreme weather events and appropriate barriers should be in place to ensure the site is secure

With the implementation of mitigation measures, and because construction activities will be short-term, potential impacts to construction workers due to extreme weather events are anticipated to be negligible.

5.1.3 Soils

Existing Impacted Soil

A Phase III Environmental Site Assessment (ESA) conducted by KGS in March 2010, indicated that approximately 390 m³ of hydrocarbon impacted soil (ethylbenzene and PHC Fraction F1) is located in the vicinity of the concrete pad over the USTs.

Mitigation measure to minimize the potential for leaching of contaminated soil include the following:

- The impacted soil should be removed from the site as part of the tank decommissioning project and the site remediated to federal and provincial standards
- Impacted soil should be treated and/or disposed of in accordance with applicable federal and provincial legislation

Contamination – Accidental Fuel spill or leak during project activity

Soil could become contaminated in the event of an accidental fuel spill/leak, during decommissioning of the existing USTs or while filling the new ASTs.

Mitigation measures to minimize the potential for soil contamination include the following:

- A Spill Response Plan must be prepared by the contractor prior to the start of the project
- Construction equipment shall not be refuelled on-site
- All spills of oil, fuel, or other deleterious materials, regardless of size, must be reported to the SK 24-hour Spill Line at (800) 667-7525
- Emergency spill kits must be readily available and employees must be properly trained to use them
- Spills must be cleaned up in accordance with applicable regulations. PWGSC and AAFC project managers should be notified immediately in case of a spill
- In accordance with the *Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations* USTs must only be removed by a qualified Petroleum Technician (LPT) licensed in the Province of Saskatchewan.
- Fuel transfer from the USTs to the ASTs must be supervised at all times to facilitate immediate shut off of flow if necessary

With the implementation of mitigation measures, potential impacts to soil due to a fuel spill during the project are anticipated to be negligible.

Contamination-Hazardous product spill during the project

Soils could become contaminated in the event that there is a spill of a hazardous product used during the project (i.e. lubricants, solvents).

Mitigation measures to minimize the potential for soil contamination include the following:

- A Spill Response Plan must be prepared by the contractor prior to the start of the project
- All spills of hazardous materials other deleterious materials, regardless of size, must be reported to the SK 24-hour Spill Line at (800) 667-7525. PWGSC and AAFC project managers should be notified immediately in case of a spill
- Use environmentally friendly products where practical, such as those displaying the Eco-Logo
- Any hazardous materials used or stored throughout the project shall be handled in accordance with WHMIS guidelines (secondary containment)
- Any hazardous materials used on-site are required to have material safety data sheets (MSDS) available
- Emergency spill kits shall be readily available and employees must be properly trained to use them
- Spills must be cleaned up in accordance with applicable regulations

With the implementation of mitigation measures and because construction activities will be taking place within gravel surface areas, potential impacts to soil due to the spill of a hazardous product used during the project are anticipated to be negligible.

Contamination-Fuel spill/leak during operation of ASTs

The operation of any fuel storage tank system has the potential to result in environmental contamination in the event of a spill or leak (contamination of soil, groundwater or surface water). Spills are most likely to occur at the fill pipe when the delivery truck's hose is being connected or disconnected.

Mitigation measures to minimize the potential for spills or leaks include the following:

- In accordance with the National Fire Code, the ASTs shall have continuous secondary containment monitoring
- In accordance with the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations* the ASTs must have corrosion protection, secondary containment, containment sumps and overfill protection
- In accordance with the *Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations* (section 15) the product transfer areas must be designed to contain spills
- In accordance with the *Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations* the ASTs must be installed by a qualified Petroleum Technician (LPT) licensed in the province of Saskatchewan
- In accordance with the *Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations* fuel transfer from the tanker vehicle to the ASTs must be supervised at all times to facilitate immediate shut off of flow if necessary
- In accordance with the *Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations* an Emergency Response Plan must be in place to deal with potential leaks or spills
- A visual inspection of the ASTs should be conducted on a weekly basis to ensure there are no leaks or equipment failures for pumps, sumps, gauges, overfill and spill containment
- A monthly inspection of all monitoring wells should be conducted and checked for liquid and/or vapour products including tank bottom water
- An annual inspection and performance testing should be conducted to test equipment performance for leak detection, corrosion protection, emergency valves, etc.
- An approved leak detection procedure should be implemented
- Records shall be completed and maintained for a minimum of 5 years in accordance with the code(s). Records should include: maintenance and repairs, weekly visual inspection, annual inspection, and tank bottom water disposal. As-built drawings, installation records should be kept for the life of the tank system
- An environmental emergency response plan must be prepared, maintained and updated. The plan should be posted next to the tank.
- Fuel spills, regardless of size, must be reported to the SK 24-hour Spill Line at (800) 667-7525
- Spills must be cleaned up in accordance with applicable regulations

With the implementation of mitigation measures and because the ASTs will be designed and installed in accordance with the *Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations* (double-walled with corrosion and overfill protection, product transfer area designed to contain spills), will be installed aboveground and will be located within a gravel-surface area, potential impacts to soil due to a spill/leak during operation of the AST are anticipated to be negligible.

5.1.4 Groundwater Resources

Existing Contamination

Based on the Phase III ESA conducted by AECOM in 2010, none of the groundwater samples collected from the monitoring wells installed in August 2009 or the monitoring well installed in January 2009 contained concentrations of BTEX or PHC Fractions F1 to F4 that were above laboratory detection limits (with the exception of benzene in a groundwater sample collected from TH09-11) or exceeded the applicable Water Quality Guidelines for the protection of community water and the protection of freshwater aquatic life. Based on results to date, shallow groundwater at the UST Area has not been impacted. However, if any groundwater is encountered during excavation activities, and is suspected of being contaminated the following mitigation measures should be implemented:

- Collect and analyze relevant samples of the groundwater to determine the concentration of hydrocarbon impacts
- Should any of the samples indicate hydrocarbon impacts above applicable criteria further testing may be required to determine the extent of groundwater contamination and remedial action to undertake

Groundwater resources could also be negatively impacted in the event of a large spill of a hazardous product used during the course of the project. Refer to mitigation measures outlined in section 5.1.2 *Soils* to minimize the potential for spills.

With the implementation of mitigation measures and because of the short duration of the project, impacts to groundwater resources are anticipated to be negligible.

No impacts to groundwater resources are anticipated as a result of the new ASTs as the new tanks will be designed and installed in accordance with the *Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations* (double-walled with corrosion and overfill protection, product transfer area designed to contain spills), will be installed aboveground and will be located within a gravel-surface area.

5.1.5 Vegetation

Because construction activities will only be taking place within the gravel pad of the RRF, no impacts to vegetation are anticipated, therefore no mitigation measures were considered necessary.

5.1.6 Species at Risk

As mentioned in section 4.1.10 *Species at Risk*, a review of Environment Canada's species at risk registry identified one species on Schedule 1 of the SARA with a range that potentially overlaps the project site, the Common Nighthawk. As this species occupies habitat that is not consistent with the project site, it is unlikely that it will be negatively impacted by the project, therefore no mitigation measures were considered necessary.

5.1.7 Mammals

Because construction activities will only be taking place during the winter within gravel-surfaced areas of the RRF, no impacts to mammals are anticipated, therefore no mitigation measures were considered necessary.

5.1.8 Amphibians/Reptiles

Because construction activities will only be taking place during the winter within gravel-surfaced areas of the RRF, no impacts to amphibians or reptiles are anticipated, therefore no mitigation measures were considered necessary.

5.1.9 Bird Species

Because construction activities will only be taking place during the winter within gravel-surfaced areas of the RRF, no impacts to bird species are anticipated, therefore no mitigation measures were considered necessary.

5.1.10 Non-Renewable Resources

The proposed project will make use of non-renewable resources including petroleum products.

Mitigation measures to minimize potential impacts on non-renewable resources include the following:

- Minimize unnecessary idling of vehicles.
- Ensure vehicles, trucks and heavy equipment are tuned up and in good working order prior to the start of the project
- Use recycled/reclaimed materials whenever possible
- Recycle/reuse waste materials generated by the project where feasible

With the implementation of mitigation measures and because the quantity of non-renewable resources that will be used throughout the project is considered minimal, impacts to non-renewable resources are anticipated to be negligible.

5.2 Valued Social Components

5.2.1 Aesthetics

Construction Activities

Temporary degradation of the site may occur throughout the course of the project due to construction activities (e.g. excavation).

Mitigation measures to minimize aesthetic impacts include the following:

- All clean stockpiled soil material may be re-used as backfill. Impacted soil must be disposed of at a licensed treatment facility or landfill
- The excavation area will be rehabilitated (backfilled, levelled and re-surfaced) to match existing
- Contractor shall ensure regular clean-up of the construction site and any debris shall be removed from the site and properly disposed of at a licensed waste management facility
- Contractor shall provide facilities for the separation of non-hazardous and hazardous wastes
- To prevent construction material from migrating away from the construction site, the contractor must ensure that construction materials are secured at the end of each day

With the implementation of mitigation measures, and because construction activities will be short-term and localized, no residual impacts are anticipated on aesthetic values.

Non-hazardous Waste

Non-hazardous waste will be generated throughout the course of the project, and if not handled appropriately aesthetic impacts could result.

Refer to mitigation measures outlined in section 5.2.1 above to minimize the potential for aesthetic impacts.

With the implementation of mitigation measures and because the project is short-term, no residual aesthetic impacts are anticipated.

5.2.2 Human Health & Safety

Physical Hazards

The use of heavy machinery presents physical hazards for construction workers, which could result in injury or loss of life.

Mitigation measures to minimize potential impacts to construction workers include the following:

- Contractor must provide a project-specific health and safety plan to the project manager prior to commencement of work
- Health and safety measures outlined in health and safety plan must be implemented
- Workers must wear protective gear in accordance with applicable provincial regulations

With the implementation of mitigation measures, and because construction activities will be short-term, potential impacts to construction workers due to physical hazards are anticipated to be negligible.

Noise

Noise associated with the use of heavy machinery may negatively impact construction workers (hearing) and employees that working at the SRF.

To minimize potential impacts on workers and the public due to noise, the following mitigation measures should be implemented:

- Maintain equipment in good working order with noise control devices (mufflers)
- Avoid unnecessary idling of vehicles

With the implementation of mitigation measures, and because construction activities will be short-term, impacts to construction workers and/or the public due to noise are anticipated to be negligible.

5.3 Public Concern

Due to the small nature and location of the project no public concern is anticipated.

5.4 Hazardous Waste

Excavated material and soil surrounding the USTs may need to be disposed of as hazardous waste if laboratory results indicate the presence of hydrocarbons in exceedance of Canadian Council of Ministers of the Environment (CCME) Soil Quality Guidelines for Agricultural Land Use. If soils are contaminated and they are not handled and disposed of appropriately, further environmental impacts could result (contamination of soil and/or hydrological resources).

Mitigation measures to minimize the potential for any further environmental impacts as a result of contaminated soil include the following:

- Soil samples will be collected from the tank nest and stockpiled to confirm soil quality
- To prevent the leaching of contaminants into soil and groundwater, stockpiled soils should be placed on tarps until soil quality is confirmed
- To prevent the migration of potentially contaminated soils away from the project site (due to wind and/or water erosion), stockpiled soils should be covered with tarps and contained until soil quality is confirmed
- To minimize the potential for stockpiled soils to erode, a rush should be placed on laboratory results to minimize the amount of time stockpiles remain on-site
- If samples are in exceedance of CCME Soil Quality Guidelines for Agricultural Land Use, contaminated soil shall be disposed of in accordance with relevant legislation
- Obtain all required permits for the decommissioning of the existing USTs and the installation and commissioning of the new ASTs (e.g. Saskatchewan Hazardous Substances and Waste Dangerous Goods Regulations).
- Obtain tipping fee receipts and manifests to verify legal disposal of contaminated material.

With the implementation of mitigation measures, any further impacts to soil and/or hydrological resources as a result of contaminated soil are anticipated to be negligible.

6 SIGNIFICANCE AND MITIGATION (S.16.(1); S. 20.(2))

The potential for project interaction with VECs and VSCs was analyzed based on: information provided by the proponent; a review of project related activities; an appraisal of the environmental setting; temporal and/or spatial conflict; personal knowledge and professional judgment. Measures to mitigate the identified potential adverse interactions were recommended. Significance ⁴ of any residual effect was ascertained based on an evaluation of the effect's magnitude, geographic extent, duration/frequency, irreversibility, and ecological context. The analysis also considers public concern, accidental and cumulative effects. Refer to the Checklist for Scoping Valued Ecosystem and Social Components & Environmental Issues above (Table 3).

The following table 4 summarizes the foregoing evaluation of impacts, and in particular details the required mitigation measures to be implemented, the residual effects, their significance, and any monitoring or follow-up requirements

⁴ For clarification of this term, please see Reference Guide: Determining Whether A Project Is Likely To Cause Significant Adverse Environmental Effects. http://www.ceaa.gc.ca/013/0001/0008/guide3_e.htm#4.2

Table 4: Summary of Mitigation Measures & Significance of Residual Effects				
Valued Ecosystem/Social Component	Description of Potential Project Interaction with VEC/VSC	Required Mitigation	Significance of Residual Effects⁵	Further Study or Follow Up
Air Quality	Reduction in air quality due to equipment emissions and dust during excavation	<ul style="list-style-type: none"> Minimize aerial emissions with the use of filters Maintain equipment in good working order Avoid unnecessary idling of vehicles and/or heavy machinery Employ non-toxic dust control measures as required (e.g. water) 	-1	No
Weather	Effect of the environment on the project – high winds, heavy precipitation, blizzards could delay the project or cause injuries or loss of life.	<ul style="list-style-type: none"> Contractor must prepare an emergency contingency plan to deal with unexpected severe weather quickly and effectively Project site should be shut down for the duration of extreme weather events and appropriate barriers should be in place to ensure the site is secure 	-1	No
Soils	Contamination – existing impacted soil	<ul style="list-style-type: none"> Any impacted soil should be removed from the site as part of the tank decommissioning project and the site remediated to federal and provincial standards Impacted soil should be treated and/or disposed of in accordance with applicable federal and provincial legislation Obtain all required permits (e.g. Hazardous Substances and Waste Dangerous Goods Regulations) 	-1	No

⁵ Significance of Residual Effects Rated as Follows:
0=None, 1=Insignificant, 2=Significant, 3=Unknown, Positive (+), Negative (-)

Table 4: Summary of Mitigation Measures & Significance of Residual Effects				
Valued Ecosystem/Social Component	Description of Potential Project Interaction with VEC/VSC	Required Mitigation	Significance of Residual Effects ⁵	Further Study or Follow Up
	Contamination - fuel spill/leak during the project	<ul style="list-style-type: none"> Construction equipment shall not be refuelled on-site A Spill Response Plan must be prepared by the contractor prior to the start of the project Construction equipment shall not be refuelled on-site All spills of oil, fuel, or other deleterious materials, regardless of size, must be reported to the SK 24-hour Spill Line at (800) 667-7525 PWGSC and AAFC project managers should be notified immediately in case of a spill Emergency spill kits must be readily available and employees must be properly trained to use them Spills must be cleaned up in accordance with applicable regulations In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> USTs must only be removed by a qualified Petroleum Technician (LPT) licensed in the province of Saskatchewan Fuel transfers from the USTs to the ASTs must be supervised at all times to facilitate immediate shut off of flow if necessary 	-1	No
	Contamination from hazardous product spill during project	<ul style="list-style-type: none"> A Spill Response Plan must be prepared by the contractor prior to the start of the project All spills of hazardous materials other deleterious materials, regardless of size, must be reported to the SK 24-hour Spill Line at (800) 667-7525 	-1	No

Table 4: Summary of Mitigation Measures & Significance of Residual Effects				
Valued Ecosystem/Social Component	Description of Potential Project Interaction with VEC/VSC	Required Mitigation	Significance of Residual Effects ⁵	Further Study or Follow Up
		<ul style="list-style-type: none"> PWGSC and AAFC project managers should be notified immediately in case of a spill Use environmentally friendly products where practical, such as those displaying the Eco-Logo Any hazardous materials used or stored throughout the project shall be handled in accordance with WHMIS guidelines (secondary containment) Any hazardous materials used on-site are required to have material safety data sheets (MSDS) available Emergency spill kits shall be readily available and employees must be properly trained to use them Spills must be cleaned up in accordance with applicable regulations 		
	Contamination from fuel spill/leak during operation of ASTs	<ul style="list-style-type: none"> In accordance with the National Fire Code, the ASTs shall have continuous secondary containment monitoring In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> the ASTs must have corrosion protection, secondary containment, containment sumps and overfill protection. In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> (section 15) the product transfer area must be designed to contain spills In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> the ASTs must be installed by a Licensed 	-1	No

Table 4: Summary of Mitigation Measures & Significance of Residual Effects				
Valued Ecosystem/Social Component	Description of Potential Project Interaction with VEC/VSC	Required Mitigation	Significance of Residual Effects ⁵	Further Study or Follow Up
		<p>Petroleum Technician (LPT) in the province of Saskatchewan</p> <ul style="list-style-type: none"> In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> fuel transfer from the tanker vehicle to the ASTs must be supervised at all times to facilitate immediate shut off of flow if necessary In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> an Emergency Response Plan must be in place to deal with potential leaks or spills A visual inspection of the ASTs should be conducted on a monthly basis to ensure there are no leaks A monthly inspection of all monitoring wells should be conducted and checked for liquid and/or vapour products including tank bottom water An annual inspection and performance testing should be conducted to test equipment performance for leak detection, corrosion protection, emergency valves, etc. An approved leak detection procedure should be implemented Records shall be completed and maintained for a minimum of 5 years in accordance with the code(s). Records may include: maintenance and repairs, weekly visual inspection, annual inspection, and tank bottom water disposal. As-built drawings, installation records should be kept for the life of the tank system In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products</i> 		

Table 4: Summary of Mitigation Measures & Significance of Residual Effects				
Valued Ecosystem/Social Component	Description of Potential Project Interaction with VEC/VSC	Required Mitigation	Significance of Residual Effects ⁵	Further Study or Follow Up
		<p><i>Regulations</i> an environmental emergency response plan must be prepared, maintained and updated. The plan should be posted next to the tank</p> <ul style="list-style-type: none"> Fuel spills, regardless of size, must be reported to the SK 24-hour Spill Line at (800) 667-7525 Spills must be cleaned up in accordance with applicable regulations 		
Groundwater Resources	Contamination from existing USTs if groundwater is encountered during excavation	<ul style="list-style-type: none"> Collect and analyze relevant samples of the groundwater to determine the concentration of hydrocarbon impacts Should any of the samples indicate hydrocarbon impacts above applicable criteria further testing may be required to determine the extent of groundwater contamination and remedial action to undertake 	-1	No
Non-Renewable Resources	Use of non-renewable resources throughout the project	<ul style="list-style-type: none"> Minimize unnecessary idling of vehicles. Ensure vehicles, trucks and heavy equipment is tuned up and in good working order prior to the start of the project Use recycled/reclaimed materials whenever possible Recycle/reuse waste materials generated by the project where feasible 	-1	No
Aesthetics	Construction Activities - temporary degradation of the site	<ul style="list-style-type: none"> Clean stockpiled soil material may be re-used as backfill. Impacted soil will be disposed of at a licensed treatment facility or landfill The excavation area will be rehabilitated (backfilled, 	-1	No

Table 4: Summary of Mitigation Measures & Significance of Residual Effects				
Valued Ecosystem/Social Component	Description of Potential Project Interaction with VEC/VSC	Required Mitigation	Significance of Residual Effects ⁵	Further Study or Follow Up
		<p>levelled and re-surfaced) to match existing</p> <ul style="list-style-type: none"> Contractor shall ensure regular clean-up of the construction site and any debris shall be removed from the site and properly disposed of at a licensed waste management facility Contractor shall provide facilities for the separation of non-hazardous and hazardous wastes To prevent construction material from migrating away from the construction site, the contractor must ensure that construction materials are secured at the end of each day 		
Human Health & Safety	Physical Hazards	<ul style="list-style-type: none"> Contractor to provide project-specific health and safety plan to the project manager prior to commencement of work Health and safety measures outlined in health and safety plan should be implemented Workers must wear protective gear in accordance with applicable provincial regulations 	-1	No
	Noise	<ul style="list-style-type: none"> Maintain equipment in good working order with noise control devices (mufflers) Avoid unnecessary idling of vehicles 	-1	No
Hazardous Waste	Hazardous waste may impact soil, water, and air if not disposed of properly	<ul style="list-style-type: none"> Soil samples will be collected from the tank nest and stockpiled to confirm soil quality To prevent the leaching of contaminants into soil and groundwater, stockpiled soils should be placed on tarps 	-1	No

Table 4: Summary of Mitigation Measures & Significance of Residual Effects				
Valued Ecosystem/Social Component	Description of Potential Project Interaction with VEC/VSC	Required Mitigation	Significance of Residual Effects ⁵	Further Study or Follow Up
		<p>until soil quality is confirmed</p> <ul style="list-style-type: none"> To prevent the migration of potentially contaminated soils away from the project site (due to wind and/or water erosion), stockpiled soils should be covered with tarps and contained until soil quality is confirmed To minimize the potential for stockpiled soils to erode, a rush should be placed on laboratory results to minimize the amount of time stockpiles remain on-site If samples are in exceedance of CCME Soil Quality Guidelines for Agricultural Land Use, contaminated soil shall be disposed of in accordance with relevant legislation Obtain, if necessary, all required permits for the decommissioning of the existing USTs and the installation and commissioning of the new ASTs under the Saskatchewan <i>Hazardous Substances and Waste Dangerous Goods Regulations</i> Obtain tipping fee receipts and manifests to verify legal disposal of contaminated material. 		

7 ACCIDENTAL EFFECTS

Any construction project has the potential for accidents to occur. Effects, such as fire, vehicle collision, fuel spills, and physical harm, including loss of life to individuals, are possible throughout the entirety of the project. All these effects are considered mitigable to insignificant through normal compliance with established construction safety practices and the Manitoba Workplace Safety & Health Act and associated regulations. Additional mitigation measures to prevent accidental harm to visitors and workers throughout the project include the following:

- Ensure construction sites are well marked and secured from the public
- Construction activities should be limited to daylight hours

Mitigation measures outlined for *Soils* and *Weather* (Table 4) also require the contractor to submit emergency and spill contingency plans to minimize potential impacts to humans and the environment. The plans must include, but are not be limited to:

- Details as to what spill response materials will be on site, for what purpose they are intended; in what volume, and in what location will they be stored on site (note: spill response materials must be on site prior to project commencement)
- Spill reporting procedures and contacts including telephone numbers
- Response procedures must also detail steps to be undertaken to prevent and mitigate spills as well as storage and disposal procedures for contaminated soils and materials

Through compliance with applicable legislation and the implementation of mitigation measures, impacts to humans and/or the environment due to an accident are anticipated to be negligible.

8 SIGNIFICANCE AND RESIDUAL EFFECTS

The analysis in the *Evaluation of Environmental Impacts and Mitigation Measures* section addresses significance of residual effects⁶/impacts on different VECs / VSCs. The determination of significance of an impact included considerations of magnitude, frequency, and duration. For all components, it is anticipated that any environmental/socio-economic impacts that may occur as a result of project activities can be mitigated. In the event that residual impacts remain following the implementation of mitigation measures outlined in section 5, it is anticipated that they will be minor, and therefore insignificant.

9 CUMULATIVE EFFECTS

In assessing the potential environmental impacts of the proposed project described in this screening report, it is necessary to consider the potential for, and significance of, any cumulative effects. Cumulative effects are defined as residual effects from a project that combine or interact with residual effects from past, present or future planned projects within the local or regional area, and that are considered significant.

⁶ Residual effects are the effects that may remain as a result of a project after mitigation measures have been implemented.

Based on information provided, potential residual effects from past activities at the Regina Research Facility could include hydrocarbon-impacted soil and/or groundwater resources as a result of diesel fuel spills/leaks associated with the existing USTs. However, any potential residual effects from the existing USTs will not be known until they are removed, and soil and groundwater (if encountered) surrounding the tanks is tested to determine the presence of hydrocarbons.

At the time of the report there were no current projects being undertaken at the RRF and no projects were planned for the future aside from replacing the USTs.

With the implementation of mitigation measures outlined in section 5 *Evaluation of Environmental Impacts and Mitigation Measures*, and because no significant residual effects are anticipated as a result of the proposed project, no cumulative effects are anticipated.

10 MONITORING AND FOLLOW UP

Although a formal follow-up program as defined under the CEA Act was not considered necessary for this project, the proponent should carry out periodic inspections of the site throughout the project to determine if any unforeseen environmental effects are occurring, and to ensure that mitigation measures recommended in this assessment are implemented.

All required mitigation measures are summarized in the Mitigation Monitoring Report form, Appendix D. This report form may be used to ensure that mitigation measures identified in this report are implemented and to verify their success

11 CONCLUSION

As mentioned in section 2.5 *Purpose and Justification*, immediate action is required in order for the existing USTs to be in compliance with the *Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations*. Because the USTs at the Regina Research Facility are nearing the end of their life expectancy, the preferred option is to permanently withdraw them from service and replace them with ASTs. Replacing the USTs with new double-walled ASTs will greatly reduce the potential for environmental contamination.

Potential environmental impacts and impacts to human health as a result of project activities were assessed, and with the implementation of mitigation measures outlined in section 5 *Evaluation of Environmental Impacts and Mitigation Measures*, any residual effects are anticipated to be insignificant.

12 REFERENCES

12.1 Site Visit

Due to the small scale of the project, no site visit was conducted.

12.2 Documents

AECOM. 2010. Phase III Environmental Site Assessment, Regina Research Farm (DFRP 13663) – Regina, Saskatchewan.

- AECOM Canada Ltd. 2009. Phase I/II Environmental Site Assessment, Regina Research Farm, DFRP 13663, Regina, Saskatchewan
- AMEC Earth & Environmental. 2011. Storage Tank Assessment, Regina Research Farm, 5000 Wascana Parkway, Regina, Saskatchewan.
- Canadian Council of Ministers of the Environment. 2010. *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products*: http://www.ccme.ca/assets/pdf/pn_1326_eng.pdf
- Canadian Environmental Assessment Act, Ministerial Guidelines on Assessing the Need for and Level of Public Participation in Screenings under the Canadian Environmental Assessment Act. http://www.ceaa-acee.gc.ca/1FE6A389-4547-4B5C-8DE1-1196B1AE19C9/ministerial_guideline_e.pdf
- Canadian Environmental Assessment Agency, Cumulative Effects Assessment Practitioners Guide. http://www.ceaa.gc.ca/013/0001/0004/index_e.htm
- Ecological Framework of Canada, Ecozone and Ecoregion Descriptions. <http://www.ecozones.ca/english/zone/Prairies/ecoregions.html>
- Environment Canada. 2008. Storage Tank Systems for Petroleum Projects and Allied Petroleum Products Regulations. <http://www.gazette.gc.ca/rp-pr/p2/2008/2008-06-25/html/sordors197-eng.html>
- Government of Canada. Species at Risk Public Registry. Species List, Schedule 1. http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1
- KGS Group. 2002. Limited Phase II Environmental Site Assessment, AAFC Regina Research Station, Sol Remediation Site.
- PWGSC. 2012. Fuel Storage Tank Compliance Upgrade, Agriculture Canada Regina Research Farm, DRAFT Specifications.

12.3 Personal Communication

Federal Coordination Contacts

Lorna Hendrickson, Head, Environmental Assessment South, Environment Canada, Environmental Protections and Operations, Prairie and Northern Region, Winnipeg, MB. (204) 983-1781, lorna.hendrickson@ec.gc.ca.

Provincial Agency Contacts

Jana Lung, P.Eng., Environmental Project Officer, Industrial Branch, Environmental Protection and Audit Division, Saskatchewan Ministry of Environment, (306) 933-7274, Jana.Lung@gov.sk.ca.

Other Contacts

None

12.4 Appendices

- Appendix A: Figures, Drawings and Photographs
- Appendix B: Background Documents
- Appendix C: Correspondence
- Appendix D: Mitigation Monitoring Report



ENVIRONMENTAL ASSESSMENT DOCUMENTATION CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)

Project Title: Proposed Underground Storage Tank Replacement, Regina Research Facility, SK

DEPARTMENTAL EA DECISION – Check One Only (Section 5.0)			
<input checked="" type="checkbox"/> Project is unlikely to cause significant adverse environmental effects taking into account appropriate mitigation measures. AAFC may take action to allow project to proceed.			
<input type="checkbox"/> Project is likely to cause significant adverse environmental effects. AAFC may not take any action to allow project to proceed.			
<input type="checkbox"/> Uncertain whether project would cause significant adverse environmental effects. Refer to Ministry of the Environment for Panel Review or Mediation.			
<input type="checkbox"/> Uncertain whether significant adverse environmental effects could be justified under the circumstances. Refer to the Ministry of the Environment for Panel Review or Mediation.			
<input type="checkbox"/> Public Concerns merits referral to Ministry of the Environment for Panel Review or Mediation.			
Completed By:			
Name	Title	Signature	Date (yyyy/mm/dd)
Peggy Bainard Acheson	Senior Environmental Specialist, PWGSC		
Reviewed by:			
Name	Title	Signature	Date (yyyy/mm/dd)
Lina Salem-Masri	Environmental Engineer, AAFC		
Approved by:			
Name	Title	Signature	Date (yyyy/mm/dd)
Debbie Biese	Integrated Service Manager, AAFC		

Environmental Assessment Report

Fuel Storage Tank Replacements Regina Research Facility, Regina, Saskatchewan

Agriculture and Agri-Foods Canada

Appendix A Figures, Drawings & Photographs

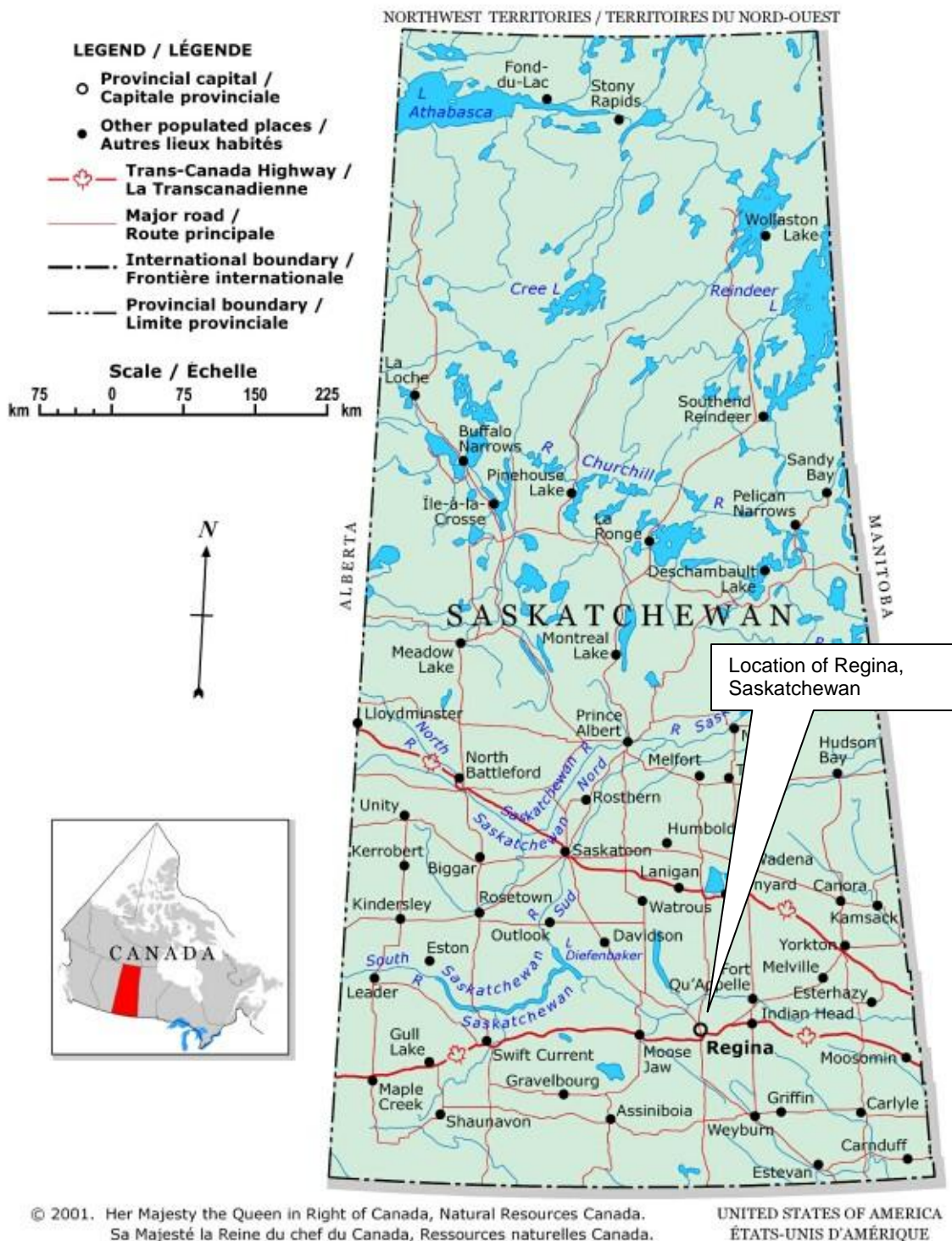


Figure 1. Map of Saskatchewan showing location of Regina.



Figure 2. Location of the main complex of the RRF in southeast Regina (Google Maps).

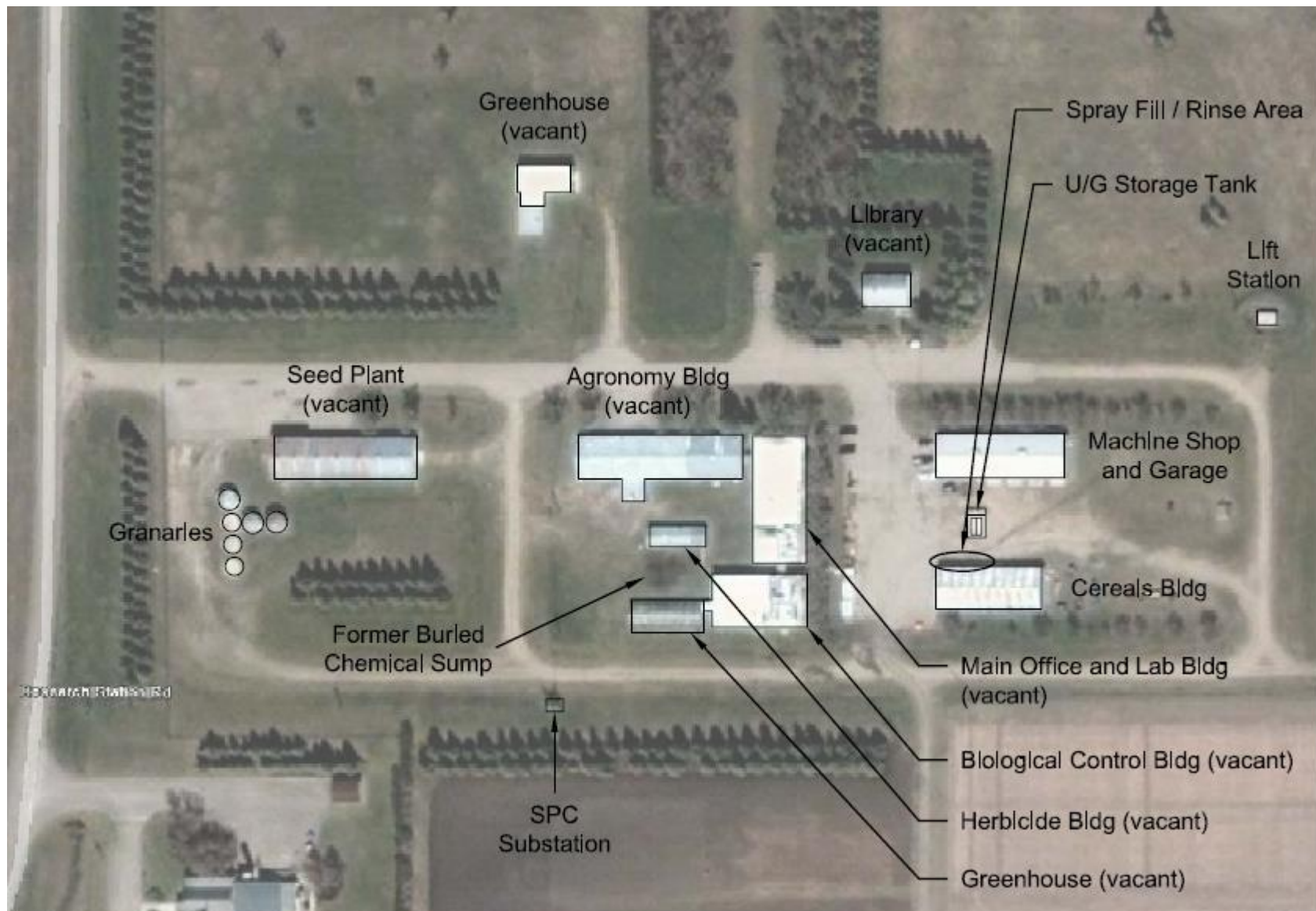
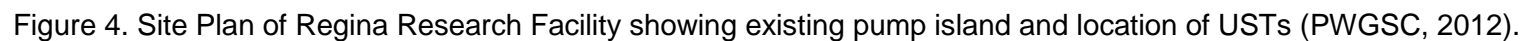


Figure 3. Site Plan of RRF showing existing pump island and location of USTs (AECOM, 2009).



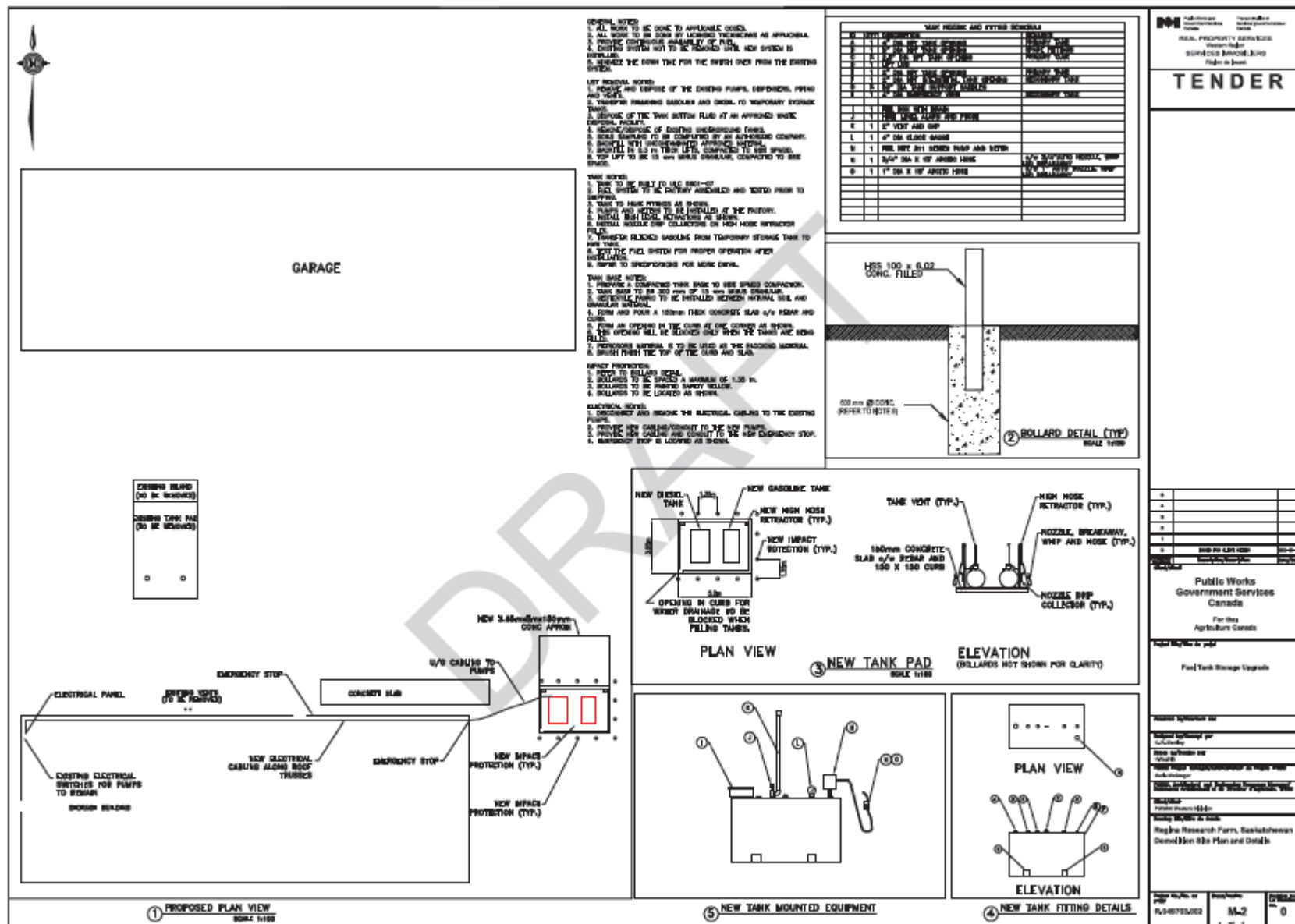


Figure 5. Site plan showing new tank fitting details (PWGSC, 2011).



Photo 1. Existing pump island with machine shop in background (AMEC, 2011).



Photo 2. New unused AST stored on site (AMEC, 2011).

Environmental Assessment Report

Fuel Storage Tank Replacements Regina Research Facility, Regina, Saskatchewan

Agriculture and Agri-Foods Canada

Appendix B Background Documents

Environmental Assessment Report

Fuel Storage Tank Replacements Regina Research Facility, Regina, Saskatchewan

Agriculture and Agri-Foods Canada

Appendix C Correspondence

Letter response from Lorna Hendrickson, Environment Canada dated February 6, 2012:



Environmental Assessment South
Environmental Protection and Operations
Prairie and Northern Region
150 – 123 Main Street
Winnipeg, Manitoba R3C 4W2

February 6, 2012

Peggy Bainard Acheson
Senior Environmental Specialist
Environmental Services
Public Works and Government Services Canada
100 - 167 Lombard Avenue
PO Box 1408
Winnipeg, Manitoba R3C 2Z1

3PM3SC0089.12 FEB 08 07:51

Re: File No: R.049703.002

Dear Ms Bainard Acheson:

**Re: Removal and Replacement of Two Underground Storage Tanks –
Regina Research Facility, Saskatchewan**

Thank you for providing us with information regarding the removal and replacement of two underground storage tanks at the Regina Research Facility, Regina, Saskatchewan. Environment Canada (EC) has had an opportunity to review the documents provided and offers the following.

EC is not a Responsible Authority (RA) under the *Canadian Environmental Assessment Act (CEAA)* because:

- EC is not a proponent of the project and is not conducting any act or thing that commits the department to carrying out the project in whole or in part;
- EC is not making or authorizing any form of payment or other financial assistance to the proponent for the purpose of enabling the project to be carried out in whole or in part;
- EC does not administer any lands involved in enabling the project to be carried out in whole or in part; and
- EC does not issue a permit, license, grant an approval or take any action for the purpose of enabling the project to be carried out, in whole or in part.

For the purposes of subsection 12(3) of the *CEAA*, EC may possess specialist or expert information or knowledge that may apply to the project. Should an RA identify any specific environmental concerns with respect to the aforementioned project, EC, as a Federal Authority, will provide specialist or expert information or knowledge pursuant to subsection 12(3) of the *CEAA*. We would ask that, if this is the case, the RA request would include specific questions or concerns that it would like EC to address.

Further, upon confirmation of triggers pursuant to the *CEAA* and receipt of the foregoing request, EC would like to be kept informed, but does not intend to formally participate in the provincial environmental assessment review of this project.

Please note the following comments related to this project:

The proponent is reminded that compliance with the Federal *Fisheries Act* is mandatory. Section 36(3) of the *Fisheries Act*, states that:

“Unless authorized by federal regulation, no person shall deposit or permit the deposit of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water”.

EC recognizes the proponents proposed intentions to comply with the CEPA and CCME codes of practice and additional standards, but would like to remind the proponent of their responsibilities under the *Federal Storage Tank Regulations*:

EC's *Storage Tank Systems for Petroleum Projects and Allied Petroleum Products Regulations* (the Regulations), developed under the *Canadian Environmental Protection Act, 1999*, and came into force on June 12, 2008. These new regulations may have an impact upon the proposed project. The Regulations can be viewed at: <http://www.gazette.gc.ca/rp-pr/p2/2008/2008-06-25/html/sordors197-eng.html>. Compliance with the new regulations is mandatory.

The Regulations apply to storage tank systems owned by federal entities, including First Nation bands, or located on federal or Aboriginal land. They outline requirements for the withdrawal from service and removal of some existing storage tank systems as well as requirements for new storage tank installations. New installations must meet a standard and must be done according to certain clauses of the Canadian Council of Ministers of the Environment *Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products* which is available at: <http://www.ec.gc.ca/CEPARRegistry/documents/regs/>. The Regulations refer to portions of the following parts of the Code of Practice:

- Part 3 Design and Installation of New Aboveground Storage Tanks
- Part 4 Design and Installation of New Underground Storage Tank Systems
- Part 5 Design and Installation of New Piping Systems
- Part 8 Operation and Maintenance

There are a number of requirements governing who may design and install systems as well as new technical requirements. All systems, new and existing, must have a product transfer area designed to contain spills. All storage tank systems must be identified directly with EC. Fuel suppliers are not allowed to deliver fuel to a storage tank that is federally regulated unless this identification number is displayed. Identification can be acquired

either by using the online identification database available through www.ec.gc.ca/st-rs or EC can mail or fax a form that must be completed and returned. The proponent is also reminded of Section 30 of the Regulations, which outlines an operator's requirements for an emergency plan. For more information please visit www.ec.gc.ca/strs.

If you have any questions concerning the above, please contact me at 204-983-1781.

Sincerely



Lorna Hendrickson
Head

Email response from Jana Lung, Industrial Branch, SK MOE dated January 18, 2012:

From: Lung, Jana ENV [Jana.Lung@gov.sk.ca]
Sent: Wednesday, January 18, 2012 1:36 PM
To: Peggy Bainard Acheson
Subject: General Inquiry - EA for the Removal/ Installation of Storage Tanks

Hi Peggy,

As per our discussion this morning, without reviewing the EA in detail, you may wish to include a comment discussing The Hazardous Substances and Waste Dangerous Goods Regulations specifically for the removal and installation of storage tanks. Suggested wording is below for your consideration.

The proponent should ensure compliance with The Hazardous Substances and Waste Dangerous Goods Regulations.

Thanks,

Jana

Jana Lung, P.Eng.

Environmental Project Officer
Uranium and Northern Operations
Industrial Branch
Environmental Protection and Audit Division
Saskatchewan Ministry of Environment
112 Research Drive, Saskatoon, SK, S7N 3R3
Telephone: (306) 933-7274
Facsimile: (306) 933-5773
<mailto:jana.lung@gov.sk.ca>

Environmental Assessment Report

Fuel Storage Tank Replacements Regina Research Facility, Regina, Saskatchewan

Agriculture and Agri-Foods Canada

Appendix D Mitigation Monitoring Report Form

Appendix D Mitigation Monitoring Report Form

Responsible Authority: Department of Agriculture and Agri-Foods Canada

Project No. R.049703.002

File Title: Regina Research Facility Tank Replacements EA, Regina, SK

The purpose of this record is to monitor the implementation of mitigation measures identified in the Environmental Assessment Screening Report. It is the responsibility of the Project Manager/Contractor to ensure that this record is completed over the duration of the project. Please complete the table below in full and specify whether the mitigation measures set out in the environmental assessment have been applied. If a mitigation measure has not been applied, specify the reason(s) why this was not done. A copy of the completed Mitigation Monitoring Report form should be forwarded to the PWGSC Project Manager and Environmental Services upon completion of the project for the project file.

Environmental Mitigation Measure	Implementation Schedule/Date	Person/Title/ Firm Responsible	Compliance (Task Complete – Yes or No/Date) If No, provide reason
Air Quality			
Minimize aerial emissions with the use of filters			
Maintain equipment in good working order			
Avoid unnecessary idling of vehicles and/or heavy machinery			
Employ non-toxic dust control measures as required (e.g. water)			
Weather			
Contractor must prepare an emergency contingency plan to deal with unexpected severe weather quickly and effectively			
Project site should be shut down for the duration of extreme weather events and appropriate barriers should be in place to ensure the site is secure			

Environmental Mitigation Measure	Implementation Schedule/Date	Person/Title/ Firm Responsible	Compliance (Task Complete – Yes or No/Date) If No, provide reason
Soils – Contamination from existing impacted soil plus spill/leak during project activity			
Impacted soil should be removed from the site as part of the tank decommissioning project and the site remediated to federal and provincial standards			
Impacted soil should be treated and/or disposed of in accordance with applicable federal and provincial legislation			
Obtain all required permits (e.g. Hazardous Substances and Waste Dangerous Goods Regulations)			
A Spill Response Plan must be prepared by the contractor prior to the start of the project			
Construction equipment shall not be refuelled on-site			
All spills of oil, fuel, or other deleterious materials, regardless of size, must be reported to the SK 24-hour Spill Line at (800) 667-7525			
PWGSC and AAFC project managers should be notified immediately in case of a spill			
Emergency spill kits must be readily available and employees must be properly trained to use them			
Spills must be cleaned up in accordance with applicable regulations			
In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> USTs must only be removed by a qualified Petroleum Technician (LPT) licensed in the province of Saskatchewan			
Fuel transfers from the USTs to the ASTs must be supervised at all times to facilitate immediate shut off of flow if necessary			
Use environmentally sensitive products where practical, such as those displaying the Eco-Logo			

Environmental Mitigation Measure	Implementation Schedule/Date	Person/Title/ Firm Responsible	Compliance (Task Complete – Yes or No/Date) If No, provide reason
Any hazardous materials used or stored throughout the project shall be handled in accordance with WHMIS guidelines (secondary containment)			
Any hazardous materials used on-site are required to have material safety data sheets (MSDS) available			
Soil – Contamination during operation of ASTs			
In accordance with the National Fire Code, the ASTs shall have continuous secondary containment monitoring			
In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> the ASTs must have corrosion protection, secondary containment, containment sumps and overfill protection			
In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> (section 15) the product transfer area must be designed to contain spills			
In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> the ASTs must be installed by a Licensed Petroleum Technician (LPT) in the province of Saskatchewan			
In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> fuel transfer from the tanker vehicle to the ASTs must be supervised at all times to facilitate immediate shut off of flow if necessary			
In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> an Emergency Response Plan must be in place to deal with potential leaks or spills			
A visual inspection of the ASTs should be conducted on a monthly basis to ensure there are no leaks			

Environmental Mitigation Measure	Implementation Schedule/Date	Person/Title/ Firm Responsible	Compliance (Task Complete – Yes or No/Date) If No, provide reason
A monthly inspection of all monitoring wells should be conducted and checked for liquid and/or vapour products including tank bottom water			
An annual inspection and performance testing should be conducted to test equipment performance for leak detection, corrosion protection, emergency valves, etc			
An approved leak detection procedure should be implemented			
Records shall be completed and maintained for a minimum of 5 years in accordance with the code(s). Records may include: maintenance and repairs, weekly visual inspection, annual inspection, and tank bottom water disposal. As-built drawings, installation records should be kept for the life of the tank system			
In accordance with the <i>Storage Tank Systems for Petroleum products and Allied Petroleum Products Regulations</i> an environmental emergency response plan must be prepared, maintained and updated. The plan should be posted next to the tank			
Fuel spills, regardless of size, must be reported to the SK 24-hour Spill Line at (800) 667-7525			
Spills must be cleaned up in accordance with applicable regulations			
Groundwater Resources			
Collect and analyze relevant samples of the groundwater to determine the concentration of hydrocarbon impacts			
Should any of the samples indicate hydrocarbon impacts above applicable criteria further testing may be required to determine the extent of groundwater contamination and remedial action to undertake			

Environmental Mitigation Measure	Implementation Schedule/Date	Person/Title/ Firm Responsible	Compliance (Task Complete – Yes or No/Date) If No, provide reason
Non-Renewable Resources			
Minimize unnecessary idling of vehicles.			
Ensure trucks and heavy equipment are tuned up and in good working order prior to the start of the project			
Use recycled/reclaimed materials whenever possible			
Recycle/reuse waste materials generated by the project where feasible			
Aesthetics			
Clean stockpiled soil material may be re-used as backfill. Impacted soil will be disposed of at a licensed treatment facility or landfill			
The excavation area will be rehabilitated (backfilled, levelled and re-surfaced) to match existing			
Contractor shall ensure regular clean-up of the construction site and any debris shall be removed from the site and properly disposed of at a licensed waste management facility			
Contractor shall provide facilities for the separation of non-hazardous and hazardous wastes			
To prevent construction material from migrating away from the construction site, the contractor must ensure that construction materials are secured at the end of each day			
Human Health and Safety			
Contractor to provide project-specific health and safety plan to the project manager prior to commencement of work			
Health and safety measures outlined in health and safety plan should be implemented			
Workers must wear protective gear in accordance with applicable provincial regulations			

Environmental Mitigation Measure	Implementation Schedule/Date	Person/Title/ Firm Responsible	Compliance (Task Complete – Yes or No/Date) If No, provide reason
Maintain equipment in good working order with noise control devices (mufflers)			
Avoid unnecessary idling of vehicles			
Hazardous Waste			
Soil samples will be collected from the tank nest and stockpiled to confirm soil quality			
To prevent the leaching of contaminants into soil and groundwater, stockpiled soils should be placed on tarps until soil quality is confirmed			
To prevent the migration of potentially contaminated soils away from the project site (due to wind and/or water erosion), stockpiled soils should be covered with tarps and contained until soil quality is confirmed			
To minimize the potential for stockpiled soils to erode, a rush should be placed on laboratory results to minimize the amount of time stockpiles remain on-site			
If samples are in exceedance of CCME Soil Quality Guidelines for Agricultural Land Use, contaminated soil shall be disposed of in accordance with relevant legislation			
Obtain, if necessary, all required permits for the decommissioning of the existing USTs and the installation and commissioning of the new ASTs under the Saskatchewan <i>Hazardous Substances and Waste Dangerous Goods Regulations</i>			
Obtain tipping fee receipts and manifests to verify legal disposal of contaminated material			

NOTES: _____

Completed by:

Name: _____

Title: _____

Firm: _____

Telephone No.: _____

Signature: _____

Date: _____

