

Appendix 6

- **Environmental Management Plans (EMPs)**
 - **Environmental Management Plan Guidelines for Highway Maintenance Yards**
 - **Highway Maintenance Yards Task Group Report (EMPs)**
 - **Site Inspection Checklist (form)**

Environmental Management Plan Guidelines Highway Maintenance Yards

(Minimum Requirements)

Date: March 4, 2005

Environmental Management Plan Guidelines

Highway Maintenance Yards

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1. Definitions:

“Owner” means the “Fee Simple” owner of the Highway Maintenance Yard (HMY).

“Owned or Previously Owned” means Highway Maintenance Yards and satellite sites that were or are currently owned by Alberta Infrastructure and Transportation. This refers to all Government Highway Maintenance Yards and satellite sites regardless of when ownership changed hands.

“Government” means the Alberta Government of the province of Alberta, Canada.

“Contaminant” means any physical, chemical, biological or radiological product, substance or material that has an adverse affect on the environment

“Containment” means to control, hold back or confine a product, substance or material within a predetermined area.

“Designated Area” means the area used for all Salt and Salt/Sand storage, mixing and handling.

"Release" means to spill, discharge, leach, leak, seep, dispose of, spray, inject, inoculate, abandon, deposit, pour, emit, empty, throw, dump, place or exhaust.

"Storage" means the holding of a substance or thing for a temporary period at the end of which it is processed, used, transported, treated or disposed of.

“All Weather Shelter” means an indoor storage structure constructed on an impermeable floor of asphalt, concrete, or other suitable material that is graded away from the centre of the structure for drainage purposes. The pad shall extend around the exterior of the structure and be graded away from the building, such that runoff is prevented from entering the structure. The structure shall have a suitably sealed perimeter to prevent salt from leaking to the exterior. The roof and the exterior including end walls of the structure shall be of waterproof material, such that precipitation and moisture are prevented from entering the structure. A tarp supported by the pile is not considered an indoor structure.

“Highway Maintenance Contractor (HMC)” means the highway maintenance contractor for Alberta Transportation who is the occupant or potential occupant of a Highway Maintenance Yard.

“Highway Maintenance Yard” (HMY) means the lands and improvements used for highway maintenance operations, in whole or in part for Alberta Transportation.

“Risk Management” means a plan and actions to reduce, control or prevent exposure to contamination. A Risk Management plan must have a fully delineated contamination area, source control, monitoring wells and be approved by all the stakeholders including Alberta Environment.

2. Introduction:

A Joint Environmental Committee with representatives from Alberta Environment, Alberta Infrastructure and Transportation recommends a unified approach to the prevention and management of salt contamination at Highway Maintenance Yards (HMYs). One of the recommendations is for the Highway Maintenance Contractors (HMCs) to develop Environmental Management Plans (EMPs) that protect the environment.

This EMP Guideline is developed as a go forward document for inclusion in Alberta Infrastructure and Transportation's Highway Maintenance Request for Proposals.

It is intended that the HMC undertake the Owners responsibility on HMYs they occupy and that EMPs they develop and administer comply with this guideline and address all potential contaminants and environmental issues.

Alberta Infrastructure and Transportation has an interest in source control of contaminants and preventing contamination on HMYs the department owns or previously owned. This interest is necessitated by Alberta Infrastructure and Transportation's ongoing efforts and responsibility to develop Risk Management plans for adjacent lands that may be contaminated due to Alberta Government operations at these HMYs.

The Joint Environmental Committee has designated all Government owned or previously owned HMYs as "High, Medium, or Low Priority Sites". EMPs for these sites must comply with the following requirements.

- ◆ "High Priority Sites (Priority One)" are those sites that are within 300 meters of a watercourse or permanent open water body; in or near communities where the water supply is obtained from shallow aquifers (identified in Appendix A); where the average surficial soil texture (texture of 1.5 metre surface) has a median grain size greater than 75 microns. These sites require the construction of an "all weather" shelter of appropriate size to fully enclose (including end enclosures) the on-site salt requirements, salt unloading activities, annual volume of salt/sand storage, mixing and loading operations. The interior shall be considered the Designated Area.
- ◆ "Medium Priority Sites (Priority Two)" are those with limited or no information about contamination, and are not in close proximity to water supplies. These sites require construction of an "all weather" shelter of appropriate size to fully shelter the annual volume of salt/sand storage, an asphalt containment area (Designated Area) for salt impacted material and a lined containment pond for runoff water.
- ◆ "Low Priority Sites (Priority Three)" are those that are not considered to be a concern for contamination. Maintain the salt/sand pile covered with tarps and protected from wind and rain. These sites require construction of an asphalt

containment area (Designated Area) for salt impacted material and a lined containment pond for runoff water. Note: this category is not considered applicable for EMP's as all HMY's are considered a concern for contamination.

3. Purpose:

The purpose of the Environmental Management Plan Guideline is to ensure a consistent approach for Owners to implement, coordinate and maintain EMPs on HMYs.

This guideline is provided to document the minimum environmental requirements of an EMP. It is intended to provide a broad overview of environmental issues that face the industry, outline minimum EMP requirements, performance issues, basic monitoring and reporting requirements and to minimize misunderstandings in preparing EMPs.

This guideline is for use as a basis for preparing, reviewing and assessing the minimum requirements for source control at HMYs. These same guidelines apply to all Owned or Previously Owned HMYs where HMCs store or obtain mixed salt/sand products for use on a highway maintenance contract with Alberta Transportation including HMYs previously owned by the Government that are now owned or operated by third parties.

4. Objectives:

The primary objectives of the Environmental Management Plan Guideline are to ensure that the HMC :

- ◆ will comply with the *Environmental Protection and Enhancement Act, Alberta Fire Code, Canadian Environmental Protection Act (CEPA), Waste Control Regulation, Release Reporting Regulation, Water act, Storm Water and Drainage Regulation* and any other legislation pertaining to the protection of the environment at the HMY and adjacent properties,
- ◆ will conduct its operation in a manner that will protect the HMY and adjacent properties and will prevent situations hazardous to the health of individuals and the environment,
- ◆ will inspect the HMY, and conduct investigations necessary to ensure compliance with the EMP, any lease agreements and all environmental laws,
- ◆ will implement best practices to prevent the release of contaminants at the HMY. It is understood that some tracking or release of contaminants such as salt is inherent in the handling operations and that the best practices must ensure tracking is kept to a minimum,
- ◆ will promptly notify the regulatory authorities if there is a release of contaminants in accordance with the Alberta Environment - Release Reporting Guidelines,

- ◆ will be responsible for the full cleanup of any contaminant releases.
- ◆ will have an acceptable EMP complying with this guideline prior to commencing operations at the HMY,
- ◆ will provide an EMP that is specific to the HMY that consists of an itemized list of each product clearly describing the intended process for storage, handling and use of each such product. The EMP will include a site plan showing specific storage areas and additional plans as necessary to illustrate how materials will be stored, protected and secured,
- ◆ will monitor and maintain records of activities required to comply with the EMP,
- ◆ will monitor their performance as required by the EMP.

5. Responsibilities

5.1. Alberta Infrastructure and Transportation

- ◆ Ensure the HMCs are aware of the requirements for an acceptable EMP.
- ◆ Ensure Leasing Branch is advised of the successful HMC for each contract involving Government owned HMYs that are to be leased.

5.2. Highway Maintenance Contractor (HMC)

- ◆ Provide an EMP that complies with this guideline, ensures source control, meets all the environmental legislation, complies with the highway maintenance contract and where applicable, the requirements of the lease agreement for Government owned HMYs.
- ◆ Provide an acceptable EMP prior to commencement of the contract and where applicable, with sufficient time to execute a lease for Government owned HMYs prior to commencement of the contract.
- ◆ Pay all costs associated with maintenance and improvements required to comply with their EMP.

5.3. Contact List

Alberta Infrastructure and Transportation

Moh Lali - Director – Transportation

Rob Tomalty - Area Manager, Lethbridge (403-381-5393)

Steve Rawcliffe – Area Manager, Calgary (403-297-3247)

Don Franks – Area Manager, Red Deer (403-340-7652)

George Tribe – Area Manager, Edmonton South (780-422-0356)

Arvid Hopp – Area Manager, North West (780-460-4990)

Louis Levasseur – Area Manager, North East (780-645-6286)

Alberta Environment

Emergency release reporting – 1-800-222-6514

6. Document Preparation and Administration:

- ◆ The HMC will prepare EMPs in a format of their choosing and will address all the issues referenced in the Environmental Management Plan Guideline.
- ◆ The HMC will keep copies of the EMP on-site that will be readily available for review by all the HMC staff and contractors as well as Alberta Infrastructure and Transportation's representative.
- ◆ The HMC will keep documentation that verifies that persons working at HMYs are suitably instructed to the extent they are involved in the use, handling and storage of products covered in the EMP and that they can and will comply with the requirements of the EMP.
- ◆ The HMC will review the effectiveness of the EMP on a regular basis and at least annually. If required, the HMC, Alberta Infrastructure and Transportation will recommend amendments to the EMP.

7. Quality Assurance Monitoring and Reporting:

- ◆ The HMC will at their own cost arrange for semi-annual inspections and any required follow up inspections by an independent and qualified engineering consulting firm registered with A.P.E.G.G.A. to determine compliance with the EMP. One inspection in summer season (July – August) and another in winter season (January – February). The HMC shall notify Alberta Infrastructure and Transportation of the time and dates of inspections so they may attend and they may do independent inspections at that time. The HMC shall make corrections identified in the reports and arrange for immediate follow up inspections. Copies of the inspection reports shall be provided to Alberta Infrastructure and Transportation within four weeks of completion.
- ◆ Alberta Infrastructure and Transportation and Alberta Environment may conduct additional investigations to ensure compliance with the EMP's and lease agreements. The HMC shall make corrections identified in the engineering reports or on-site inspections where they are found to be non-compliant.
- ◆ Alberta Infrastructure and Transportation may, but is not obligated to enter HMY's owned by Alberta Infrastructure and Transportation to rectify situations where the HMC is in any way failing to comply with the lease agreement or EMP requirements.
- ◆ The HMC will keep records and logs to demonstrate that proper controls are in place, working successfully and monitored.
- ◆ The HMC will immediately report to Alberta Environment any releases that have caused or have the potential to cause an adverse effect. Reporting requirements are described in the *Release Reporting Regulation* (Alberta Environment, 2001). Examples of reportable releases include, but are not limited to, overflowing catchment area, containment ponds or significant spills outside the containment area and any release of contaminants that leave the HMY.
- ◆ The HMC will notify Alberta Environment of all oil, diesel, gasoline or dangerous good spills no matter what the size of the spill. Fisheries and Oceans as well as the Coast Guard also require notification where the spill occurs near a stream, river or water body.
- ◆ The HMC will report to Alberta Infrastructure and Transportation any environmental related issues and complaints by the public or adjacent landowners.

- ◆ Representatives for Alberta Infrastructure and Transportation will advise the HMC of any environmental related issues and complaints by the public or adjacent landowners.
- ◆ The HMC will provide groundwater quality monitoring.
 - ◆ Provisions at minimum shall include one monitoring well to be located hydraulically up-gradient and two wells down-gradient.
 - ◆ One of the down-gradient wells shall be located immediately down-gradient from the run-off containment pond where a pond is utilized.
 - ◆ Unless gravels are encountered throughout the profile, the well shall be designed to allow collection of groundwater samples from the uppermost water bearing formation. Where no water is encountered, depth of placement of the piezometers for the protection of the groundwater aquifer is at the discretion of the hydrogeologic specialist registered by A.P.E.G.G.A...
 - ◆ The HMC shall arrange initial sampling of chloride and sodium concentrations as soon as the groundwater levels have stabilized in the monitoring wells. Subsequent sampling and testing shall be done semi-annually.
 - ◆ The groundwater sampling and laboratory analyses shall be directed by an independent and qualified engineering consulting firm registered with A.P.E.G.G.A.. Analytic sampling is to meet CAEAL (Canadian Association of Environmental Analytical Laboratories) requirements. Calcium and magnesium are to be included within the sampling to determine SAR (sodium adsorption ratio). All results shall be provided to Alberta Infrastructure and Transportation within 60 days of sampling.
 - ◆ The HMC shall be responsible for all costs associated with monitoring well installation, maintenance, sampling and analysis. Costs for additional samples requested in excess of the frequency specified above will be the responsibility of the party requesting the samples.
- ◆ The HMC will obtain the necessary approvals required by the Alberta Environment *Water Act*, the *Environmental and Protection Act* and the *Stormwater Management Guidelines*, prior to making changes to the HMY landscape. The HMY is responsible for all costs associated with applications, approvals, modifications as a result of the above act and regulation, as well as any moving or relocating sand, salt or structures put in place prior to the required approvals. Approvals can take 30 days from the date of application, but may take much longer depending on the circumstances.

8. Product Storage and Handling

This section provides a summary of the products and operational issues to be considered by the HMC in the preparation of an EMP. The HMC is fully responsible for assessment of the site to ensure all the environmental issues are identified and addressed in the EMP.

8.1. Product Identification and Labeling

8.1.1. Product Identification, Storage and Handling

The following table identifies many of the products that are commonly stored and handled at the HMY and provides a brief description of their potential for release into the environment. When released into the environment, these products may be contaminants and therefore the HMC must address their potential release in their EMP. This is not an all-inclusive list. The HMC must provide an all-inclusive list of products in use or storage.

product	Storage and Handling Issues	
<p>Salt</p> <p>Pre-wetting Brine</p>	<ul style="list-style-type: none"> • Spillage on the ground and/or becoming airborne during delivery and salt shed filling process. • Spillage on the ground and/or becoming airborne during movement of salt from the salt shed to the mixing area. • Precipitation falling on the sand/salt pile carries salt out of the designated area. • Truck parked in heated garage. • Condition of containment ponds. • Saline water disposal from containment ponds. • • Mag Chloride and Calcium Chloride may be stored in tanks in the designated area outside or in a separate area with 100% secondary containment. • Sodium Chloride may be stored inside the shops where secondary containment is provided or (1) the municipality approves where a spill goes to the municipal drain or (2) the leaching cesspools have been changed to a suitably sized storage tank. 	<ul style="list-style-type: none"> • Sand/salt mixture falling from loaded trucks as they drive on the site. • Equipment used for handling, relocation and mixing of salt or sand/salt mixture is used for other purposes, thereby depositing salt at the location where the equipment is used. • Snow piles created on the site during snow removal operation. • Washing of trucks on the site. • • The type of brine, concentrations and methods of storage and handling must be clearly posted and addressed in an environmental management plan.
<p>Engine Fuel</p>	<ul style="list-style-type: none"> • Leaking underground fuel storage tanks. • Leaking aboveground fuel storage tanks. • Spillage while refueling at the designated refueling area. • Spillage while refueling at random locations on the site. • Leaking fuel tanks and slip tanks on vehicles and equipment. • Spillage during removal from vehicle or equipment fuel tank. 	<ul style="list-style-type: none"> • Leakage during storage prior to disposal. • Spillage and dripping on the site during cleaning/rust proofing of truck boxes or other equipment. • Spillage or improper disposal of fuel used as a cleaning solvent. • Leakage from 45-gallon drums stored for future use.
<p>Engine Oil and Filters</p>	<ul style="list-style-type: none"> • Leakage from dispensing equipment • Spillage during oil change procedure. • Spillage and dripping on the site during cleaning/rust proofing of truck boxes or other equipment. 	<ul style="list-style-type: none"> • Leaking vehicles and equipment. • Leakage from empty oil containers prior to disposal. • Leakage/spilling during storage prior to disposal.
<p>Lubricating Grease</p>	<ul style="list-style-type: none"> • Leakage from dispensing equipment. • Spillage during lubrication procedure. 	<ul style="list-style-type: none"> • Leakage from empty grease containers and dispensers prior to disposal. • Leakage from storage tanks or containers.
<p>Automotive Antifreeze</p>	<ul style="list-style-type: none"> • Leakage from dispensing equipment. • Spillage during filling, mixing procedures. • Leaking vehicles and equipment. 	<ul style="list-style-type: none"> • Spillage during removal from engine or flushing procedures. • Leakage from storage tanks or containers.
<p>Solvents</p>	<ul style="list-style-type: none"> • Leakage from dispensing equipment. • Improper ventilation of airborne vapors. • Spillage during cleaning of vehicle and equipment parts. 	<ul style="list-style-type: none"> • Spillage during thinning of paints and cleaning of painting tools or equipment. • Leakage from storage tanks or containers.
<p>Liquid/Solid Asphalt, Liquid Paint</p>	<ul style="list-style-type: none"> • Leakage from dispensing equipment. • Spillage during filling, mixing procedures. • Leakage from application equipment. 	<ul style="list-style-type: none"> • Leakage from storage tanks or containers.
<p>Soil Sterilants, Herbicide, Insecticide</p>	<ul style="list-style-type: none"> • Leakage from dispensing equipment. • Spillage during filling, mixing procedures. • Inadequate labeling of mixed product. • Regulation compliant storage area 	<ul style="list-style-type: none"> • Improper cleaning of application equipment and containers. • Leakage from any containers during storage. • WHMIS compliant
<p>Automotive Batteries</p>	<ul style="list-style-type: none"> • Improper charging procedure, location and storage and disposal. 	

<p>Pre-treated Timber, Oily Rags, Absorbents, Tires, Aerosol Cans</p>	<ul style="list-style-type: none"> • Inadequate storage locations and procedures. • Excessive quantities. • Lengthy storage time.
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8.2. Storage Containers and Tanks (environmentally sensitive products)

8.2.1. General

- ◆ The HMC will dispose of, in an appropriate manner, residue/waste from equipment cleaning, drippings, etc. Such disposal methods and locations will be identified in the EMP.
- ◆ The HMC will clearly label all product containers and tanks identifying the product being contained in accordance with WHMIS regulations.

8.2.2. Containers

- ◆ The HMC will ensure that no sources of ignition, such as smoking or open flames, are present where inflammable products are stored.
- ◆ The HMC will maintain containers in good condition. The containers will be accurately and sufficiently labeled with no residue on the outside of containers. Containers in questionable condition should be placed in an overpack container and removed from site.
- ◆ The HMC will ensure leaking containers have contents transferred to secure container or be placed in an overpack container.
- ◆ The HMC will ensure that stacking of containers in storage will be done in a manner that will not cause the containers to be damaged or ruptured by excessive weight, falling or tipping.
- ◆ The HMC will store and label all containers in a containment area.

8.2.3. Storage Tanks

- ◆ The HMC will construct, operate, and inspect tank systems used for storage, blending, or processing of liquids to ensure that they are environmentally sound.
- ◆ The HMC will ensure that all tanks, stationary or portable, located or kept on site, have secondary containment. Secondary containment may necessitate the construction of an earthen berm around a tank or provisions of a designated location with secondary containment for a portable tank.
- ◆ The HMC will ensure all hoses used for transfer purposes are free of cracks or defects. When not in use, hoses are to be placed in a manner to prevent leakage or a method provided to capture any leakage.
- ◆ The HMC will place a drip pan or bucket under the hose connections to contain any drippings during transfer of liquids into or out of tanks.

8.3. Solid Asphalt Mix Storage

- ◆ The HMC will not prepare asphalt mix on Government owned HMYs unless approved in writing by Alberta Infrastructure and Transportation.

9. Spill Prevention and Response Requirements

- ◆ The HMC will operate the facility to minimize the possibility of a fire, explosion or unplanned release of substances. A site specific Contingency or Emergency Response Plan must be in place that has been prepared by the HMC to minimize health and environmental hazards arising from fires, explosions, or any other unplanned release of substances.
- ◆ The HMC must be aware of the applicable legislation such as the *Release Reporting Regulation* with respect to spills, spill response, and reporting requirements.
- ◆ The HMC will equip the facility with appropriate spill response equipment and documented procedures
- ◆ On Government owned HMYs, the HMC will ensure that Alberta Infrastructure and Transportation is contacted in a timely manner in the event of any fire, explosion, or release of substance.

10. Contamination Risk Areas

HMYs have areas that are affected by high concentrations of potential contaminants. These areas require ongoing monitoring and care to ensure adequate source control. The HMC will keep records and logs to demonstrate that proper controls are in place, working successfully and monitored.

10.1. Designated Area

- ◆ The HMC will ensure that the designated area has an impervious surface such as asphalt. The boundaries of the designated area will be designed and constructed so that the salt and salt/sand mix is confined to the area. The minimum recommended asphalt thickness is 100mm. 150mm rolled design curbs or similar height perimeter edge banking should be considered in the design.
- ◆ The HMC will ensure the exposed surface is examined each spring for drainage and condition and all necessary maintenance is performed. The pavement base should be evaluated as salt may have contaminated the base to the point that it may not be capable of supporting the intended loads.
- ◆ The HMC will ensure proper drainage flow and crack sealing to direct surface runoff to a saline water containment pond.
- ◆ The HMC will ensure that the designated area is large enough to accommodate the storage of salt impacted snow so as to have any melt-water runoff directed to the saline water containment pond.
- ◆ The HMC will ensure that any detritus or salt impacted material accumulating on the designated area is added to the salt/sand pile or disposed of in accordance with the appropriate legislation. Such material shall not be stored off the designated area.

- ◆ The HMC will prepare detailed plans and operating procedures for all requirements of the EMP to ensure salt will be confined to the designated area. The plans will detail the containment area as well as a containment pond for saline runoff water.
- ◆ The HMC will immediately clean up all salt spilled outside the designated area. Spills will be reported as per the *Release Reporting Regulation* (Alberta Environment 2001) and recorded in the Owner's onsite logbook.

10.2. Sanitary Sewage Systems

- ◆ The HMC will not use the sanitary sewage systems as catchment areas for saline rain or snow melt water, or for any other contaminants.
- ◆ The HMC must obtain written approval from the municipality before connecting new drainage systems used for washing salt impacted vehicles and equipment to municipal systems
- ◆ The HMC may direct sanitary sewage containing saline water from washing salt impacted vehicles and equipment to a holding tank, provided that the holding tank is pumped out and the effluent is disposed of in accordance with the applicable regulations.
- ◆ The HMC will not use municipal ditches, roadway ditches, natural drainage courses or property for any saline water runoff.

10.3. Fuel and Oil Storage or Use Areas

- ◆ The HMC will maintain fuel storage tanks to current *Alberta Fire Code* standards.
- ◆ The HMC will register fuel storage tanks with the Petroleum Tank Management Association of Alberta.
- ◆ The HMC will not use above ground farm type, fuel storage tanks.
- ◆ The HMC will not use underground fuel storage tanks.
- ◆ The HMC will provide and maintain a surface, such as concrete, in the vehicle refueling area to contain spills.
- ◆ The HMC will provide and maintain containment areas where oil or petroleum products are stored or used. These areas will be of sufficient size to contain 100% of the stored products. This includes fuel used to clean or rust proof truck boxes or other equipment. Note: Not required for unopened containers 4 liters or smaller.
- ◆ The HMC will clean up all spills and recycle or dispose of spilled materials in accordance with the *Environmental Protection and Enhancement Act* and the *Waste Control Regulation*.
- ◆ The HMC will keep records as required by the *Environmental Protection and Enhancement Act* and the *Waste Control Regulation* for all contaminants disposed of and these records will be made available upon request.
- ◆ The HMC will not use fuel or oils over absorbent material with the intent of deliberately releasing a contaminant and disposing of the contaminated absorbing material.

10.4. Treated Lumber Storage Areas

- ◆ The HMC will store treated timber products in an area specifically marked for the purpose.
- ◆ The HMC will ensure that treated timber products are covered.
- ◆ The HMC will keep the stored quantities at a reasonable amount.
- ◆ The HMC will remove unusable or broken material from the site at least annually. Disposal will be in accordance with the *Environmental Protection and Enhancement Act* and the *Waste Control Regulations*.

11. Salt Storage and Handling Requirements

Extreme care must be exercised in the storage, handling and delivering of salt to ensure salt is not released to the environment. Best practices must ensure good housekeeping standards are maintained. Extensive contamination occurs due to the cumulative effect when salt is released over a localized area.

11.1. Salt Shed Operations

- ◆ The HMC will store salt in a salt shelter or covered structure.
- ◆ The HMC will inspect the salt shelter annually and take remedial action to maintain the structure.
- ◆ The HMC will keep the salt shed doors closed when there is no salt operation in progress.

11.2. Salt Off-loading Requirements

- ◆ The HMC will ensure that a trained person perform or supervise all aspects of the off-loading of the salt into the salt shed or shelter.
- ◆ The HMC may load salt into the shed by conveyor or blow salt into the shed by providing a piping system with filtered air vents designed for the purpose. The piping system will be thoroughly cleaned before and after each use and will have operating procedures posted on the shed. The type of filters and frequency of cleaning and changing will be part of the operating procedures. The shed doors and other openings will be closed and sealed during blowing operations to ensure air escaping the shed does so only through the filter sections.
- ◆ The HMC will clean salt spilled during the off-loading operations on completion.
- ◆ The HMC will adjust operations or stop off-loading immediately if airborne salt is observed leaving the designated area, or the shelter in the case of High Priority sites.

12. Salt/Sand Management Practices

Containment of salt and salt impacted materials is a mandatory lease agreement requirement on Government owned HMYs. Every effort should be taken to ensure salt is fully contained.

12.1. Salt/Sand Mixing Requirements

- ◆ The HMC will undertake all pickled salt/sand mixing, storage and handling in the Designated Area.
- ◆ The HMC will contain all salt/sand within the Designated Area at all times.
- ◆ The HMC will develop and comply with a detailed procedure that ensures salt dust or spray does not leave the Designated Area.
- ◆ The HMC will not carry out the pre-winter mixing operation when wind conditions cause any salt dust or spray to become airborne and migrate off the designated area.
- ◆ The HMC will ensure that persons involved in the mixing operation are properly instructed and familiar with the requirements to limit salt and salt dust or spray to the designated area.

12.2. Salt/Sand Stockpile Carry-over Requirements

- ◆ The HMC will work with Alberta Infrastructure and Transportation to minimize the quantity of salt/sand stockpile carry-over at the end of each highway maintenance period.
- ◆ The HMC will undertake all reasonable activities to prevent salt water leaching or flowing into natural drainage courses, roadway ditches or onto adjacent lands.

12.3. Salt/Sand Covering Requirements

- ◆ The EMP must comply with the following requirements at all HMY's:
 - ◆ “High Priority Sites (Priority One)” As a minimum, these sites require the construction of an “all weather” shelter of appropriate size to fully shelter the on site salt requirements, salt unloading activities, annual volume of salt/sand storage, mixing and loading operations. The interior shall be the Designated Area.
 - ◆ “Medium Priority Sites (Priority Two)” As a minimum, these sites require construction of an “all weather” shelter of appropriate size to fully shelter the annual volume of salt/sand storage, an asphalt containment area (Designated Area) for salt impacted material and a lined containment pond for runoff water.
 - ◆ “Low Priority Sites (Priority Three)” As a minimum, these sites require the salt/sand pile to be covered with tarps and protected from wind and rain, construction of an asphalt containment area (Designated Area) for salt impacted material and a lined containment pond for runoff water. (*see note in section 2. Introduction: Low Priority Sites*)
 - ◆ Tarps used for covering salt/sand piles must be firmly secured to solid anchors suitable for the purpose.
 - ◆ Salt/sand piles must be covered with tarps at all times during rainy season generally mid May to October. Salt/sand piles must also be suitably protected from wind erosion for the balance of the year.

- ◆ Shelters used for covering salt/sand piles may be temporary metal, wood or fabric structures. The shelters should be installed on wood or concrete pony walls of sufficient height and construction to accommodate the volume of material stored and loading equipment activity. The shelters must be adequately sealed to prevent entry of water and escape of dust.

12.4. Equipment Maintenance and Cleaning Requirements

- ◆ The HMC will only clean salt and road grit from equipment on the designated area.
- ◆ The HMC will not wash salt from plow trucks or equipment on the HMY unless an adequate catchment and disposal system for the saline water is provided, and as provided in 10.2 of this guideline.
- ◆ The HMC will clean maintenance shop sumps regularly during the salt/sand application season to minimize the amount of salt impacted grit in the system.

13. Saline Water Containment and Disposal (salt impacted runoff water)

Government owned or previously owned HMY sites require the construction and maintenance of a saline water containment pond. The containment pond must be designed to capture all the runoff from the containment or Designated area.

13.1. Saline Water Containment Pond Design and Construction

The HMC will consider the following when planning the design of a saline water containment pond:

- ◆ The amount of space available in the yard.
- ◆ The topography: The pond will be located in an area down-gradient from the designated area.
- ◆ The number of times a year that it is desirable to remove the brine from the pond.
- ◆ Annual precipitation: Alberta Infrastructure and Transportation recommends that the pond design and operation be based on annual precipitation as opposed to unusual storm events (e.g. 1 in 50 year, 1 in 100 year etc.). The reason for this is the required storage volume will be very high for infrequent storm events compared to average annual precipitation. Precipitation information is available at www.agric.gov.ab.ca.
- ◆ The size of the designated area: The designated area consists of the salt shed, the mixing area, the pickled material storage pile, handling area, snow storage and the saline water containment pond.
- ◆ The freeboard in the containment pond: Sufficient freeboard in the pond needs to be provided for normal storm events. Where possible pond water should back up onto the designated area to provide additional runoff storage.
- ◆ The containment pond liner: Heavy polyethylene liner material that is UV protected and resistant to chemicals is required and installed as per manufacturer's specification. Particular attention must be paid to the bedding material for the liner.

- ◆ The preceding design information is intended to assist with basic design and is not intended to be all the information that needs consideration. Site specific information is required (e.g. topographical survey) to complete the design. Alberta Infrastructure and Transportation, Site and Environmental Services, is available to liaison with the HMC on pond design and approve proposals prior to construction on government owned HMYs.
- ◆ The saline water containment pond liner will be inspected annually. The process and findings will be documented in the onsite log book.

13.2. Saline Water Disposal

- ◆ The HMC will ensure that all runoff from the designated area is collected in the saline water containment pond and the HMC must remove water when the levels reach the designed high water line to ensure adequate free board is available. The designated high water line will be clearly indicated on the pond structure.
- ◆ The HMC will remove the saline water from site to an acceptable disposal location. Note: Acceptable disposal locations are salt-water injection wells or other locations accepted by Alberta Environment.
- ◆ The HMC will not under any circumstances discharge salt impacted water from the containment ponds at the site. Note: Even though the designated area may have been washed down and appears clean there will be residual salt. Even small amounts of salt discharged at the site repeatedly will have a cumulative effect, which is not acceptable.
- ◆ The HMC will keep a log on site of all disposals. The information in the log will include dates, approximate volumes pumped, and manifests/receipts from disposal sites.

14. Site Drawings and Sketches

- ◆ The HMC will keep site drawings showing locations of all building improvements and storage areas.
- ◆ The HMC will keep site drawings showing topographical elevations and site drainage flow directions.
- ◆ The HMC will keep engineered construction drawings for the saline water containment pond and associated apparatus.
- ◆ The HMC will keep sketches that detail contaminant storage areas, tanks and containers.

15. APPENDIX A

The following communities are known by Alberta Environment to have sensitive ground water supplies and to obtain water from shallow aquifers referred to in priority 1 sites.*

Village of Andrew
Village of Bon Accord
Town of Canmore
Village of Chauvin
Village of Cremona
Municipality of Crowsnest Pass
Village of Delburne
Town of Eckville
Village of Entwistle
Village of Forestberg
Village of Ft. Assiniboine
Town of Hardisty
Town of High River
Town of Killam
Village of Longview
Village of Lougheed
Town of Okotoks
Town of Oyen
Village of Rosalind
Village of Sedgewick
Town of Smoky Lake
Town of Sundre
Town of Turner Valley

* This list was developed through the former MUST Program (Management of Underground Storage Tanks) for incorporation into the 1992 Alberta Fire Code to identify specific communities where secondary containment would be requirement for installation of underground petroleum storage tanks.



Highway Maintenance Yards Task Group Report

Objectives

The objective of this report is to address the current and future salt environmental liability issues related to highway maintenance yards, develop strategies and processes to deal with them and clarify the roles of the various parties involved. A common direction and commitment to continue improving salt management practice is required from all parties to address and manage this risk.

Executive Summary

Environmental liability issues related to highway maintenance yards is a growing issue for the government. As a result, the Alberta government has invested considerable time and resources to address the issues. In November 2005, a task group was established to review what has been done to date and which areas still needed to be addressed. The task group included members from Alberta Environment, Alberta Infrastructure and Transportation and the Maintenance Contractor representatives from the Alberta Road Heavy Construction Association (ARHCA).

Various risks and solutions were discussed by the group which included liability for off-site contamination, environmental enforcement and cost of environmental controls. Each of these risks and the existing controls were reviewed in detail. From this review the group was able to identify and put into action a number of recommendations, most of which will enhance existing controls.

The areas addressed included the Review of Environmental Management Plans, disposal of salt water from the retention ponds, inspections, enforcement for non-compliance issues with EMP, decommissioning of yards, roles and responsibilities of department staff and the role of the Joint Environmental Committee.

Background Information

Senior department staff from the Transportation and Properties Divisions of Alberta Infrastructure and Transportation met on August 23, 2005 to review the current salt management practices at highway maintenance yards. There were concerns expressed on the salt contamination taking place in the highway maintenance yards by the maintenance contractors, and the department's and maintenance contractors' exposure to environmental liability. It was decided that a task force consisting of the major stakeholders and headed up by Moh Lali be established and recommendations for improvements be provided to Rob Penny and Bob Smith.

A task force was formed consisting of Moh Lali (chairman), Bruce Atwell, Don Snider, Nick Bucyk, and Steve Otto from Transportation and Civil Engineering Division; Don Franks and Tom Purser from Properties Division; David Helmer from Alberta Environment; Fred Desjarlais from Volker Stevin Contracting Ltd and Chad Lemay from Transportation Systems Management Ltd. representing the maintenance contractors from ARHCA.

When the department outsourced highway maintenance in 1996, method based specifications were developed and used. Salt management at maintenance yards was not considered a significant issue. Most of the existing highway maintenance yards were leased back to the highway maintenance contractors and they were to operate the yards using procedures similar to the department's past practices.

In 1998-99, the department reviewed its role in owning and leasing government facilities and at the same time the federal government was looking at the issue of salt being declared a toxic substance. The department at that time made a decision to get out of the business of leasing shops. With the exception of a few maintenance shops located on SRD (Crown) land, all maintenance shops were to be sold. Many of the maintenance yards were purchased by the maintenance contractors with the condition that all existing off-site contamination will be the responsibility of the department.

Environmental Management Guidelines for Highway Maintenance Yards were developed by a Task Group made up of Alberta Transportation, Alberta Infrastructure, Alberta Environment and ARHCA, and applied for leased sites only. These guidelines were introduced in the 2001 contracts.

At that same time, on pristine sites owned by the contractor the department took the position that the department was not liable for any on-site or off-site contamination as a result of the contractor's operation. For previously government owned sites that were sold to the contractors, any on-site contamination was considered to be the contractor's responsibility and any existing off-site contamination was the department's responsibility. It was felt at the time the industry would comply with any applicable environment regulations.

Further legal interpretation was provided to the department that stated that because the department was directly benefiting from the operation of the maintenance facilities, the department would still be responsible to ensure that the maintenance contractor was taking every reasonable measure to protect the environment. The department was required to do its due diligence to avoid any possible future environmental prosecution.

In 2003, requirements for Environmental Management Plans extended beyond the leased facilities and now were a requirement for all highway maintenance facilities included in contracts that were tendered after that date. Minor changes have been made to the guidelines for the current 2006 contracts.

A considerable amount of investment has been made in managing salt better. The concern is that now, despite all the improvements that have been made, some serious contamination issues are still occurring.

The task group discussed the following basic questions:

- How can further liability to the contractors and the government be mitigated?
- What tools can be used by the contractors and the department to satisfy their due diligence requirements?

Risk Identification

Liability for off-site contamination

On all sites now owned by maintenance contractors that were previously government owned, Alberta Infrastructure and Transportation is responsible for the existing off-site contamination. At several sites across the province, the maintenance contractor is continuing to add to the off-site contamination. Poor surface drainage control and overflowing retention ponds are two of the major items that are contributing to this problem. Good house keeping practices are not being implemented across the province by some contractors.

Adjacent landowners to highway maintenance facilities are becoming more knowledgeable about salt contamination issues and are having a higher expectation for the handling of contaminations issues. Currently the off-site contamination liability is about \$26 million, which is just the estimated costs for site assessments and the development of Risk Management Plans and does not include acquisition of adjacent properties. This fiscal liability will increase substantially if better source control is not provided.

Environmental Enforcement

Currently, Alberta Environment has left it up to the department and the maintenance contractors to resolve the issues surrounding the maintenance yard. They are expecting to see progress made on this issue, otherwise, they may be forced into a position to take enforcement action. If the department cannot show their due diligence, then the department is exposing itself to prosecution along with the contractor.

Cost of Environmental Controls

Disposal of water from the retention ponds is becoming more difficult. At the moment, generally the only acceptable disposal methods are deep-well injection or occasionally pumping into Municipalities sewage systems. Many oil field companies are no longer accepting the salt contaminated retention pond water which is driving up the cost of disposal at further distant wells.

Cost of implementing the environmental controls using methods such as full covered storage for all salt and sand/salt mixtures is estimated to be around \$40-50 million over the next 5 years for the 19 CMAs that were retendered in 2005. The department is covering the costs for the improvements through its operational budget which is only increasing at about 2% each year. Other services within the maintenance contracts may need to be reduced to cover the additional costs if no extra funding is made available; this will lead to reduction in the level of service in highway maintenance overall.

Controls

At the present moment the following controls have been put into place to help reduce the Environmental risks associated with a Highway Maintenance yard.

Environmental Management Plans

- All maintenance contracts tendered after 2003 require the contractor to develop Environmental Management Plans for all highway maintenance facilities the contractors use. Prior to this, only Government owned facilities that were leased to the Contractors required Environmental Management Plans. The Environment Management Plan must meet the guidelines identified in the contract document titled “Environment Management Plan Guidelines for Highway Maintenance Yards”

Maintenance Contracts

- Environmental Management Plans must be submitted by the contractor to the department for approval. For the 19 CMAs tendered in 2005, for each site that does not have an approved EMP by September 1 the contractor will face a financial penalty as specified in the contract.
- The Contractor shall arrange for semi annual inspections at each maintenance facility site included in the contract, to demonstrate compliance with the EMP. One inspection shall be scheduled during the summer season and one in the winter season. All inspections are intended to be conducted by an independent and qualified engineering consultant firm registered with A.P.E.G.G.A.
- Should the contractor not comply with their EMP then they may be issued demerit points under the contract.

Joint Environmental Committee

- The JEC comprises of members from Alberta Environment and Alberta Infrastructure and Transportation. The role of the committee is to provide recommendations for the management of contaminated highway maintenance yards. Much of the committee’s early initiatives have been met and are now being implemented.

Recommended Action

To further reduce the department’s and maintenance contractor’s risks, the following actions are being recommended for implementation. Some of these recommendations have already been initiated.

Review of Environment Management Plans

- As part of the maintenance contract, all Environmental Management Plans (EMPs) must be approved by the department for each maintenance facility. For the 19 CMAs tendered in 2005, there are approximately 100 maintenance facilities. It is anticipated that the majority

of EMPs will be developed within the first few months of the 2006. The maintenance contractors would like a quick turn around time on plan review so that they can proceed to develop their maintenance facilities by September 1, 2006. The department does not have the resources to do a through review in that period.

- Third Party Review

- The task group was in favor of having the department hire a consultant to do the review of the EMPs. This would address the issue of timely and consistent reviews.
- Two consultants would be hired to do the reviews. They would work with the contractors to ensure the EMPs meet the minimum guidelines set out by the department. Once the consultant feels that the contractor has an acceptable plan, they would forward it to the department for final review and acceptance. An EMP inspection review checklist is included in Appendix A.
- These consultants would also be responsible for the annual spot audit inspections in the winter months. An EMP bi-annual site inspection checklist is included in Appendix B.

Disposal of Salt Water from the Retention Ponds

- To address the growing concern regarding the cost of disposal of salt impacted water from the retention ponds, the group recommended that alternative cost effective disposals methods be considered. It was agreed that the department would hire a consultant to examine alternative disposal methods for salt water in the retention ponds. The committee developed a list of possible disposal methods for the consultant to begin their review (Appendix E). Alberta Environment will provide comments on the disposal methods recommended by the consultant.

Inspections

- At the moment only two formal, independent, inspections are required annually by the maintenance contractor to ensure they are in compliance with the EMP. The department has some concerns that this may not be sufficient to satisfy the department's and maintenance contractors' due diligence requirements. Additional inspections are warranted and they are as follows:
 - Type and Frequency of Inspections
 - The group recommended that in addition to the detailed semi-annual inspections, monthly quality control inspections needed to be carried out by the maintenance contractor.
 - The contractor's foreman would do monthly quality control inspections and the department's consultant will do one quality assurance inspection on 50% of the yards in the first winter and 50% of the yards in the following winter. These inspections will be random and the contractor will be provided one day notice. The contractor's foreman is to be present during these inspections.

- Additional inspections by the consultant may be requested if the department becomes aware of any significant environmental issues at the highway maintenance yards.
- Shared Facilities
 - For shared facilities, the following are to be inspected for the various scenarios:
 - If the Contractor leases a portion of the land from the site owner and the highway maintenance operation can be delineated from the rest of the yard, then only the portion the contractor leases will be inspected.
 - If the Contractor inter mixes his operations with others on shared facilities, then the entire site is to be inspected.
- Reporting
 - These inspections should be standard across the province so that performance measures can be developed. A standard checklist has been developed and is included in Appendix C. The contractor and the department are to be provided with a copy of all inspection reports.
 - All items on the report must be in compliance. Any items not in compliance need to have an action plan identified by the contractor to rectify the problem.

Enforcement for Non-Compliance Issues with EMP

- As a follow up to the inspections, deficiencies noted are addressed with the following recommended enforcement priority by the department's Operations Manager:
 - First response will be verbal or by email (Note to file should be used).
 - Second warning on the same item is a written notice using a letter.
 - Third warning on the same item is a written notice along with a penalty of \$5000.
 - Fourth warning on the same item is a written notice along with a demerit point.
- Alberta Environment may conduct an investigation at any time if they feel one is warranted.

Decommissioning of Yards

- Concerns were raised with respect to the decommissioning of a yard. If a contractor loses his contract and the site is no longer to be used as a highway maintenance yard, then Alberta Environment expects that at a minimum a surface clean up of the site be done. Sand and salt piles are to be removed from the site and the designated pond should be washed down. The pond must be pumped out to avoid any future salt contamination.

- The intention of decommissioning is surface clean-up, to leave the yard orderly and tidy and remove all salt and sand piles. The department will conduct an inspection of the site after it has been cleaned up. Once this inspection is complete the department would release any holdback.
- Guidelines for decommissioning sites have been developed and are including in the Appendix D. Contractor input is required on the guidelines before implementation.

Roles and Responsibilities of Department Staff

- With the recent re-organization of the department, additional staffs have been transferred to the Transportation and Civil Engineering Division to deal with environmental issues. As a result of this change, it is recommended that all environmental issues related to the maintenance shops be transferred from the Infrastructure side to the Transportation division. This includes all active and in-active sites. Properties will continue to look after all vertical infrastructure for owned facilities that continue to be leased because private land is not available.
- The department's Property Managers are currently responsible for dealing with issues regarding offsite contamination issues for owned and previously owned highway maintenance facilities. They are having a difficult time addressing some of the ongoing environmental issues with the maintenance contractor, as they do not directly manage the maintenance contract. Operation Managers administer highway maintenance contracts and it is recommended that they also administer environmental issues at maintenance yards for on-site contamination. As well, the Operations Managers will manage any off-site contamination issues.

Role of Joint Environmental Committee

- Many of the initiatives that the Joint Environmental Committee (JEC) was to implement are complete or in progress. It is recommended that the JEC continue to meet to address the following:
 1. Both Environment and AIT continue to ensure that Best Management Practices are implemented and maintained at private sector and owned sites. Continue to deal with the numerous issues that arise during the development of Risk Management Plans (RMP). Assure the completion of RMPs for Priority 1 sites are completed and that Priority 2 and 3 Sites continue to be dealt with as necessary. Periodically review site priorities to ensure they are correct as new information becomes available.
 2. Continue to discuss the need for Environment to establish a Code of Practice or Regulation for the management of Highway Maintenance Yards. Ensure that all Departments cooperate to develop and deliver educational programs for highway maintenance contractors.
 3. With organization changes the composition of the JEC should change. Properties Area Managers (other than Don Franks) and Site Services staff would no longer attend. It was suggested that the four T&CE Regional Environmental Coordinators (or one of them as their representative) would attend. The rest of the JEC composition would be largely unchanged.

- The JEC may want to expand its role to look after other contamination issues instead of just maintenance yards.

APPENDICES

- A. EMP INSPECTION REVIEW CHECKLIST
- B. EMP BI-ANNUAL SITE INSPECTION CHECKLIST
- C. SITE INSPECTION CHECKLIST (MONTHLY & SPOT)
- D. DECOMMISSIONING MAINTENANCE YARDS GUIDELINES
- E. POSSIBLE SALT BRINE DISPOSAL METHODS

APPENDIX A

EMP INSPECTION REVIEW CHECKLIST

Checklist for Evaluation of Environmental Management Plans for Highway Maintenance Yards

January 9, 2006,

Based on *Environmental Management Plan Guidelines Highway Maintenance Yards (March 4, 2005)*

Topic	Section	Description of requirement
Comply with Environmental Laws	4.	HMC complies with environmental protection legislation
	4.	HMC will notify regulatory authorities of any releases
	7. & 9. (p9)	HMC will notify AB Env of releases – <i>Release Reporting Regulation</i>
	7.	HMC will notify AB Env of any release of dangerous goods or hydrocarbons
	7.	HMC will notify Cdn Coast Guard and/or Cdn Dept. of Fisheries and Oceans of releases near water bodies
	8.2.1	HMC clearly labels containers and tanks IAW WHMIS regulations
	10.1	HMC will immediately clean up, document and report any de-icing salts spilled outside the Designated Area
	10.3	HMC will maintain fuel storage to current <i>Alberta Fire Code</i> standards, and register tanks with the Petroleum Tank Management Association of Alberta
10.3	HMC will clean up spills and maintain records IAW the <i>Environmental Protection and Enhancement Act</i> and <i>Waste Control Regulations</i> .	
Contractual Obligations	4.	HMC will have site specific EMP acceptable prior to starting operations at HMY
	4.	HMC will monitor and record activities associated with EMP
	4.	HMC will monitor own activities as required in EMP
	7. & 10. (p9) & 13.2 (p14)	HMC will keep records and logs of control measures
	6.	HMC will keep copies of EMP on site
	6.	HMC will review EMP on an annual basis
	7.	HMC will report to AIT of any issues or complaints by public or adjacent landowners
	9.	HMC will develop site specific Contingency or Emergency Response Plan prior to starting operations at HMY HMC will contact AIT following fire, explosion or release (for leased sites only)

Design of HMY	2.	EMP complies with Priority requirements
	4.	EMP includes list of products on site and how materials received, stored and handled
	8.1.1	HMC provides a all-inclusive list of products in use or storage at HMY
	9.	HMC will equip HMY with appropriate spill response equipment and procedures
	10.1	Designated Areas in HMY will be designed to limit releases of de-icing salts – constructed on an impervious surface (maintained annually), control of surface waters, capture of salt contaminated waters and snow
	10.2	Sanitary sewer systems are not used to contain contaminated waters
	10.3	Only approved tanks will be used to store fuels, with a containment system
	10.3	Hydrocarbons will be stored in a containment area
	10.4	Treated Lumber will be stored in a manner to limit release of preservatives
	11.1	Salt will be stored in a covered structure
	12.1	Mixing, storage and handling of sand/salt mixes will be in the Designated Area
	12.3	Sand/salt storage must be IAW assigned Priority of site
	12.4	Equipment may only be cleaned in the HMY inside the Designated Area or where wash water is contained.
13.1	Retention ponds must be designed and constructed IAW requirements in the Guidelines	
Groundwater Monitoring	7.	HMC will provide groundwater monitoring program
Inspections	4.	HMC inspects HMY
	7.	Semi-annual inspections for compliance by independent, qualified engineer
	7	HMC responsible for follow-up action and follow-up inspections
	7	HMC develops process for notifying AIT of planned inspections
	7	HMC provides copies of inspection reports to AIT within 4 weeks
Operations	4.	HMC operates HMY to protect property and environment
	4.	HMC will implement BMP to prevent releases of contaminants
	8.2.2 & 8.2.3	HMC will handle and store containers to reduce risk of release
	8.2.3	HMC will provide secondary containments for all material storage tanks
	11.1	Salt storage structures will be inspected and maintained annually.
	11.1	Salt storage structures doors will be kept closed except when salt operations are in progress.
	11.2	Only trained personnel will perform and supervise unloading of salt into storage structures.
	11.2	Unloading will be stopped if airborne salt is observed leaving the Designated Area
	11.1 &	HMC will develop and implement BMPs for reducing the loss of de-icing salts during

	11.2	handling and storage
Remediation & Disposal	4.	HMC is responsible for full cleanup of contaminant releases
	8.2.1	EMP has plans for disposal of all residue & waste
	13.2	Salt-contaminated water must be disposed at an acceptable location.
Training	6.	HMC will maintain training records associated with EMP

Priority Column:

- C Critical – EMP must contain
- R Recommended in draft EMP

Acronyms:

- BMP Best Management Practices
- EMP Environmental Management Plan
- HMC Highway Maintenance Contractor
- HMY Highway Maintenance Yard
- IAW 'in accordance with'
- WHMIS Workplace Hazardous Materials Information System

APPENDIX B

EMP BI-ANNUAL SITE INSPECTION CHECKLIST

EMP BI-ANNUAL SITE INSPECTION CHECKLIST**1. Documentation and Preparation**

Guideline	Completed	Comments
Is there an Environmental Management Plan in place?	YES NO N/A	
Are copies of the EMP on site?	YES NO N/A	
Are the copies readily available?	YES NO N/A	
Are there training records for staff members?	YES NO N/A	
Has the EMP been reviewed regularly and at least once a year?	YES NO N/A	

2. Quality Assurance Monitoring and Reporting

Guideline	Completed	Comments
Has the site been inspected semi-annually by an independent and qualified engineering consulting firm registered with APEGGA to determine compliance with the EMP?	YES NO N/A	
Were the inspections done in summer season (July to August) and winter season (January to February)?	YES NO N/A	
Was Alberta Infrastructure and Transportation notified of the time and dates of the inspections?	YES NO N/A	
Were any corrections identified in the report completed and was a follow up inspection arranged?	YES NO N/A	
Were copies of the inspection reports provided to Alberta Infrastructure and Transportation within four weeks of Completion?	YES NO N/A	

Are there records and logs to demonstrate proper controls are in place, working successfully and monitored?	YES NO N/A	
Have any releases that have caused or have the potential to cause an adverse effect been reported to Alberta Environment, as per the <i>Release Reporting Regulations</i> ? Examples of reportable releases include, but are not limited to, overflowing catchment area, containment ponds or significant spills outside the containment area and any release of contaminants that leave the HMY.	YES NO N/A	
Was ENV notified of all oil, diesel, gasoline or dangerous goods spills, no matter the size?	YES NO N/A	
Were any environmental related issues and complaints by the public or adjacent landowners reported to INFTRA?	YES NO N/A	
Is there a groundwater monitoring well hydraulically upgradient?	YES NO N/A	
Are there two MW downgradient?	YES NO N/A	
Where a pond is utilized, is one of the downgradient MW located immediately down-gradient of the pond?	YES NO N/A	
Were the MW sampled and tested initially for chloride and sodium concentrations?	YES NO N/A	
Has sampling and testing of the MW occurred semi-annually?	YES NO N/A	
Was the sampling procedure directed by an independent and qualified engineering firm registered with APEGGA?	YES NO N/A	

Has analytical sampling met with CAEAL requirements?	YES NO N/A	
Were all sample results provided to INFTRA within 60 days of sampling?	YES NO N/A	
Were any changed to the landscape approved by the ENV <i>Water Act, EPA, and the Stormwater Management Guidelines</i> ?	YES NO N/A	

3. Product Storage and Handling

3.1 Product Storage and Handling

3.1.1 Product Identification, Storage and Handling

Guideline	Completed	Comments
Is there an all inclusive list of products in use or storage?	YES NO N/A	
Does this list address each products potential release into the environment?	YES NO N/A	

3.2 Storage Containers and Tanks

3.2.1 General

Guideline	Completed	Comments
Has all residue/waste, from equipment cleanings, drippings, etc., been disposed of in an appropriate manner?	YES NO N/A	
Are all such disposal methods and locations identified in the EMP?	YES NO N/A	
Are all containers and tanks properly labeled according to WHIMIS regulations?	YES NO N/A	

3.2.2 Containers

Guideline	Completed	Comments
Are there NO sources of ignition present where flammable products are stored?	YES NO N/A	
Are containers in good condition? i.e. Sufficiently labeled, no leaks, no residue, etc.	YES NO N/A	
Are the containers stored in a safe manner that will not cause the containers to be damaged by or ruptured by excessive weight, falling or tipping?	YES NO N/A	
Are all containers stored in a containment area?	YES NO N/A	

3.2.3 Storage Tanks

Guideline	Completed	Comments
Are all tank systems constructed, operated and inspected to ensure they are environmentally sound?	YES NO N/A	
Do all tanks (stationary or portable) have secondary containment?	YES NO N/A	
Are all hoses used for transfer purposes free of cracks or defects?	YES NO N/A	
When hoses are not in use, are they placed in a manner to prevent leakage or a method provided to capture any leakage?	YES NO N/A	
Are there buckets under hose connections to contain any drippings during transfer of liquids into or out of tanks?	YES NO N/A	

3.3 Solid Asphalt Mix Storage

Guideline	Completed	Comments
Is there NO preparation of asphalt mix at the yard?	YES NO N/A	

4. Spill Prevention and Response Requirements

Guideline	Completed	Comments
Is there a site specific Emergence Response Plan to minimize health and environmental hazards arising from fires, explosions, or any other unplanned release of substance?	YES NO N/A	
Is the HMC aware of the applicable legislation such as <i>Release Reporting Requirements</i> with respect to spills, spill response, and reporting requirements?	YES NO N/A	
Is the facility equipped with appropriate spill response equipment and documentation procedure?	YES NO N/A	

5. Contaminated Risk Area

5.1 Designated Area

Guideline	Completed	Comments
Does the designated area have an impervious layer?	YES NO N/A	
Is the salt and salt/sand mix confined to the area?	YES NO N/A	
Has the exposed surface been examined each spring for drainage and condition and all necessary maintenance is performed?	YES NO N/A	

Is there proper drainage flow and crack sealings to direct surface runoff to a saline containment pond?	YES NO N/A	
Is the designated area large enough to accommodate the storage of salt impacted snow so that any melt-water runoff is directed to the saline water containment area?	YES NO N/A	
Has any detritus or salt impacted material accumulating on the designated area been added to the salt/sand pile or been disposed of in accordance with the appropriate legislation?	YES NO N/A	
Has the contractor prepared detailed plans and operating procedures for all requirements of the EMP to ensure salt will be confined to the designated area?	YES NO N/A	

5.2 Sanitary Sewage Systems

Guideline	Completed	Comments
Is the SSS NOT used as catchment areas for saline rain or snow melt water, or for any other contaminant?	YES NO N/A	
Are municipal ditches, roadway ditches, natural drainage courses or property NOT for any saline runoff?	YES NO N/A	

5.3 Fuel and oil storage or use areas

Guideline	Completed	Comments
Are fuel storage tanks maintained to current Alberta Fire Code Standards?	YES NO N/A	
Are all fuel storage tanks registered with the Petroleum Tank Management Association of Alberta?	YES NO N/A	
Are there NO above ground farm type, fuel storage tanks?	YES NO N/A	
Are there NO underground fuel storage tanks?	YES NO N/A	
Is a surface provided and maintained in the vehicle refueling area to contain spills?	YES NO N/A	
Is a containment area provided and maintained where oil or petroleum products are stored?	YES NO N/A	
Have all spills been cleaned up in accordance with the EPEA and <i>Waste Control Regulations</i> ?	YES NO N/A	
Are there records available upon request for all contaminants disposed of?	YES NO N/A	

5.4 Treated lumber storage area

Guideline	Completed	Comments
Are treated timber products stored in a specifically marked area?	YES NO N/A	
Are they covered?	YES NO N/A	
Are the stored quantities at a reasonable amount?	YES NO N/A	
Has all unusable or broken material from the site been removed at least annually in accordance with <i>EPEA and WCR</i> ?	YES NO N/A	

6. Salt Storage and Handling Requirements

6.1 Salt Shed Operations

Guideline	Completed	Comments
Is the salt in a salt shed shelter or covered structure?	YES NO N/A	
Has the salt shelter been inspected annually?	YES NO N/A	
Are the salt doors kept closed when there is no salt operations in progress?	YES NO N/A	

6.2 Salt Off-Loading Requirements

Guideline	Completed	Comments
Does a trained person perform or supervise all aspects of the off-loading of salt into the salt shelter?	YES NO N/A	
If salt is loaded into the shed by conveyer or blown into the shed, has a piping system with filtered air vents designed for the purpose been provided?	YES NO N/A	
Has the piping system been thoroughly been cleaned before and after each use?	YES NO N/A	
Are operating procedures posted on the shed?	YES NO N/A	
Does the procedure include the type of filters and frequency of cleaning and changing?	YES NO N/A	
Are the shed doors and other openings closed and sealed during blowing operations?	YES NO N/A	
Is salt spilled during off-loading operations cleaned up upon completion?	YES NO N/A	

7. Salt/Sand Management Practices

7.1 Salt/Sand Management Practices

Guideline	Completed	Comments
All pickled salt/sand mixing, storage, and handling should be undertaken in the designated area	YES NO N/A	
Is all sand/salt contained within the designated area at all times?	YES NO N/A	
Is there a detailed procedure that ensures salt dust or spray does not leave the containment area?	YES NO N/A	
Are pre-winter mixing operations NOT carried out when wind conditions cause any salt dust or spray to become airborne and migrate off the designated area	YES NO N/A	

Are all persons involved in the mixing operations properly instructed and familiar with the requirements to limit salt and salt dust or spray to the designated area?	YES NO N/A	
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7.2 Salt/Sand Stockpile Carry-Over Requirements

Guideline	Completed	Comments
Have all reasonable activities to prevent salt water leaching or flowing into natural drainage courses, roadway ditches or onto adjacent lands been undertaken?	YES NO N/A	

7.3 Salt/Sand Covering Requirements

Guideline	Completed	Comments
Priority 1		
Is there an "all weather" shelter of appropriate size to fully shelter the on site salt requirements, salt unloading activities, annual volume of salt/sand storage, mixing and loading operations?	YES NO N/A	
Priority 2		
Is there an "all weather" shelter of appropriate size to fully shelter the annual volume of salt/sand storage?	YES NO N/A	
Is there an asphalt containment area for salt impacted material?	YES NO N/A	
Is there a lined containment pond for runoff water?	YES NO N/A	
All Sites		
Are tarps used for covering salt/sand piles firmly secured to solid anchors?	YES NO N/A	
Are salt/sand piles covered with tarps at all times during the rainy season (May to October)?	YES NO N/A	
Are salt/sand piles suitably protected from wind erosion for the balance of the year?	YES NO N/A	

Guideline	Completed	Comments
Is salt and road grit from equipment cleaned only on the designated area?	YES NO N/A	
Are maintenance shop sumps regularly cleaned during the salt/sand application season to minimize the amount of salt impacted grit in the system?	YES NO N/A	

8. Saline Water Containment and Disposal

8.1 Saline Water Containment and Disposal

Guideline	Completed	Comments
Is the pond located down-gradient from the designated area?	YES NO N/A	
Is the liner heavy polyethylene material that is UV protected and resistant to chemicals?	YES NO N/A	
Is the saline water containment liner inspected annually?	YES NO N/A	
Are the processes and findings documented in the onsite log book?	YES NO N/A	

8.2 Saline Water Disposal

Guideline	Completed	Comments
Is all runoff water from the designated area collected in the saline water containment pond?	YES NO N/A	
Is the water removed when levels reach the high water line?	YES NO N/A	
Is the high water line clearly indicated on the pond structure?	YES NO N/A	

Is the water removed to an acceptable disposal location?	YES NO N/A	
Is there a log on site of all disposals?	YES NO N/A	
Does it include dates, approximate volumes pumped, and manifests/receipts from disposal sites?	YES NO N/A	

9. Site Drawings and Sketches

Guideline	Completed	Comments
Are drawings showing locations of all building improvements and storage areas on site?	YES NO N/A	
Are site drawings showing topographical elevations and site drainage flow directions available?	YES NO N/A	
Are there engineered construction drawings for the saline water containment pond and associated apparatus?	YES NO N/A	
Are there sketches that detail containment storage areas, tanks and containers?	YES NO N/A	

10. All Weather Shelter

Guideline	Completed	Comments
Is the Shelter constructed on an impermeable floor of asphalt, concrete or other suitable material?	YES NO N/A	
Is the floor graded away from the centre of the structure for drainage purposes?	YES NO N/A	
Does the pad extend around the exterior of the structure?	YES NO N/A	
Is the pad graded away from the building, such that prevents runoff from entering structure?	YES NO N/A	
Does the structure have a suitability sealed perimeter to prevent salt from leaking to the exterior?	YES NO N/A	
Are the roof and exterior of waterproof material?	YES NO N/A	

SITE INSPECTION CHECKLIST
(MONTHLY & SPOT)

APPENDIX C

SITE INSPECTION CHECKLIST (MONTHLY AND SPOT)

	Inspection Date:	In Compliance with EMP			Comments
		Yes	No*	N/A	
A	Administration/Training				
	1. Are all "Action Required" items from the previous inspection completed?				
	2. Are winter maintenance operations in progress (i.e. are trucks being loaded with sand or salt?)				
	3. Is all equipment for spill control listed in the EMP in good condition?				
	4. Are copies of the EMP and operating procedures readily available to all employees?				
B	Product Identification/Storage/Handling				
1.	Containment Area including Curbing & Pad				
	1.(a) Are spills of pickled sand or salt outside of the containment area cleaned up?				
	1.(b) Are spills of pickled sand or salt outdoors but inside the containment area cleaned up?				
	1.(c) Are all piles of snow contaminated with pickled sand or salt inside of the containment area?				
	1.(d) Can surface water flow freely into the retaining pond?				
	1.(e) Is surface water from outside the containment area prevented from entering?				
	1.(f) Are all loading and mixing done within the containment area?				
2.	Pond				
	2.(a) Is the level in the retaining pond less than the 'high water' mark?				
3.	Sand/Salt (pickled) Storage				
	3.(a) Are all cracks in floor of pickled sand structures sealed?				
	3.(b) Are any holes, tears or leaks from pickled sand structures repaired?				
	3.(c) Are all pickled sand stored indoors?				

	3.(d) Is the pickled sand structure door closed?				
4.	Salt Storage				
	4.(a) Are all cracks in floor of salt structures sealed?				
	4.(b) Are any holes, tears or leaks from salt structures repaired?				
	4.(c) Is the salt structure door closed?				
5.	Equipment Cleaning/Washing				
	5.(a) Is the water level in wash-water storage tank is less than the maximum level specified in the EMP?				
	5.(b) Are vehicles only washed in an area with adequate catchment of dirty water?				
6.	Pre-wetting operation/liquid brine				
	6.(a) Are all tanks, valves, pipes in good condition and leak-free?				
	6.(b) Are any spills of liquid de-icing chemical cleaned up?				
<p><i>Provide details on any deficiencies identified from the inspection and action(s) required (attach additional information as required):</i></p>					
<p style="text-align: right;">_____ Signature of person(s) doing inspection</p>					

DECOMMISSIONING MAINTENANCE YARDS
GUIDELINES

Guidelines for decommissioning sites used as highway maintenance facilities under a Highway Maintenance Contract with Alberta Infrastructure & Transportation

Standards for decommissioning

Site Status	Decommissioning Guidelines
1. Govt. owned site under lease to HMC	<ul style="list-style-type: none"> As per terms of lease and requirements in EMP
2. Sites leased by HMC from other	<ul style="list-style-type: none"> As per lease conditions and requirements in EMP
3. Pristine sites owned by HMC (not previously owned by govt.)	<ul style="list-style-type: none"> As per requirements in EMP
4. Existing site remaining with same HMC in new contract	<ul style="list-style-type: none"> Site upgraded by HMC to current EMP standards, as detailed in RFP
5. Sites owned by HMC, previously owned by govt., and 6. Govt. owned site not under lease to HMC	<ul style="list-style-type: none"> All refuse removed to approved disposal facility – clean and tidy everywhere on the site If site will not be used in new contract, then all salt, sand and pickled sand removed (may be moved to different site as directed by dept.). If site will be used in a new contract, then salt, sand and pickled sand stockpiled in compact, uniform manner to maximize the amount of open space in the designated area. All other dept.-owned material removed, as directed by dept. Statutory declaration from HMC that there are no outstanding environmental claims or complaints (This may be part of the statutory claims declaration) Status report from environmental consultant of conditions at time of decommissioning Designated area swept, pressure washed and all material removed to appropriate disposal facility Retention pond pumped dry, any sediment removed to an appropriate disposal facility and pond left cleaned. (This is expected to require a minimum of rinsing with clean water and pumped dry a second time.) Surface drainage (i.e. ditches, curbs, sumps) returned to functional condition Any other requirements in EMP

Roles and Responsibilities

HMC

- responsible for all decommissioning activities at end of contract or site closure
- continue EMP until decommissioning completed
- remediate site to meet Alberta Environment's criteria

AIT

- perform decommissioning inspection
- T&CE Operations Manager will advise that holdback can be released after decommissioning of all sites is complete

AB Env

- Confirm that site meets criteria for decommissioning

Timing

- Decommissioning is expected to be completed within 2 months from either the end of the highway maintenance contract or the last day that the site is in operational use.

POSSIBLE SALT BRINE DISPOSAL METHODS

POSSIBLE SALT BRINE DISPOSAL METHODS

Alberta Infrastructure and Transportation will be conducting a research project for salt brine disposal methods. Until the completion of this project, the following list gives some disposal methods that may be feasible in the Province. For any one particular site, not all methods listed below may be acceptable.

1. Deep - well disposal
2. Snow dump disposal
3. Disposal through a municipal water treatment system
4. Dilution for surface release (contaminated waters may be used in highway maintenance work such as washing curbs and raised medians, or released directly from the HMY)
5. Evaporation, to reduce the volume of brine for disposal
6. Freeze separation, to concentrate the brine and reduce the volume for disposal
7. Reverse osmosis filtering, to concentrate the brine and reduce the volume for disposal
8. Removal of dissolved salts, by other filtering methods
9. Use of de-icing chemical brines as a dust suppression agent on gravel highways
10. Use of de-icing chemical brines as a component in a dust suppression agent (i.e. mixing flake calcium chloride with salt brine)
11. Disposal of brines by mixing with base material for road or bridge construction
12. Re-use of brines as a pre-wetting agent in highway maintenance
13. Recovery of brine to use as a feedstock in industrial production (i.e. hydrochloric acid production)
14. Recovery of brine for use in petrochemical refining
15. Use of de-icing chemical brines as irrigation water for vegetation that absorb salts when growing; then disposal of the vegetation in a suitable manner.

SITE INSPECTION CHECKLIST

SITE _____ Contractor _____

Inspection Date: _____

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		Yes	No*	N/A	
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Signature of person(s) doing inspection