Volume 1, Section 9 Snake Lake Reservoir Expansion Project
Project Description
Waste Management

Submitted to:

MPE
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On behalf of:

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Executive Summary

The Eastern Irrigation District (EID) is applying for approval under the *Environmental Protection and Enhancement Act* (EPEA) (Government of Alberta [GOA], 2000) to construct the proposed Snake Lake Reservoir (SLR) Expansion Project (the Project). The Project, located between Bassano and Brooks in Alberta, involves the construction of a roughly 8 km long, and up to 20 m high dam to increase the storage capacity of the reservoir system from 19.25 million m^3 to 87.4 million m^3.

The following document discusses waste management, based on requirements in the Final Terms of Reference (FTOR) for the Project, covering topics such as relevant Acts and Regulations, types and characteristics of waste generated and plans for waste reduction.

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Abbreviations

EI	Environmental inspector
EID	Eastern Irrigation District
EPEA	*Environmental Protection and Enhancement Act*
FTOR	Final Terms of Reference
GOA	Government of Alberta
GOC	Government of Canada
SDS	Safety Data Sheet
SLR	Snake Lake Reservoir

9.1 INTRODUCTION

Waste refers to any material or substance that is discarded, unwanted, or no longer useful, typically resulting from human activity. Waste management involves the collection, transportation, recycling, disposal, and treatment of waste materials to minimize negative impacts on the environment and public health. The following subsections discuss waste and waste management as it relates to the proposed Snake Lake Reservoir (SLR) Expansion Project (the Project).

9.1.1 Regulatory

In Alberta, waste management is governed by several Acts, Regulations, and guidelines that set out the legal framework for the proper handling, disposal, and recycling of waste. The following may be considered, where appropriate (Table 9-1):

Table 9-1: Waste management regulations, guidelines, and codes

Authority	Applicable Acts, Regulations, Guidelines and Codes
Government of Canada	• *Transportation of Dangerous Goods Act* and *Regulations* (Government of Canada [GOC], 1992) • *Hazardous Products Act* (GOC, 1985)
Government of Alberta	• *Environmental Protection and Enhancement Act* (EPEA; (GOA, 2000)) • *Waste Control Regulation* (GOA, 1996a) • *Occupational Health and Safety Act* and *Regulations* (GOA, 2020; GOA, 2021) • *Alberta User Guide for Waste Managers* (GOA, 1996b) • *Release Reporting Regulation* (GOA, 1993)

9.2 TYPES AND CHARACTERISTICS OF WASTE GENERATED

Below is a list of types of waste that may be generated by the Project:

- Garbage and food scraps.
- Portable toilet waste.
- Construction waste (e.g., materials from decommissioning of the extant East Dam, excess concrete, wood, survey stakes and flagging, and used geotextiles).
- Contaminated materials (from accidental spills).
- Industrial waste (e.g., fuels and coolants, solvents and antifreeze, lube filters, used batteries).
- Woody debris (e.g., shrubs, trees).
- Vegetation removed as part of weed management.

It is expected that the majority of waste generated will be during the construction phase.

9.3 SELECTED METHODS FOR WASTE DISPOSAL

Different strategies will be considered when determining the proper waste disposal methods, in the order below:

1. Reduce the amount of waste generated by the Project, achieved through appropriate pre-construction planning (i.e., purchasing the appropriate quantity of supplies).
2. Reuse materials and products (e.g., stripped topsoil, rock and gravel).

3. Recycle/compost waste material and products (e.g., food waste, paper, cardboard, batteries, beverage containers, personal items).
4. Disposal of non-recyclable/ non-compostable materials.

9.3.1 Locations for Waste Disposal

All waste material will be disposed in accordance with federal, provincial, and municipal legislation. Temporary storage locations at the Project site will be used for storage of waste, as needed. This may be a gated area with space for organic debris (wood, cardboard) garbage bins, recycling bins (e.g., for oil containers), a gated area may be needed to prevent additional human contact with wastes and to keep wastes from dispersing (e.g., by wind). As containers fill, they will be trucked to a waste transfer site in the nearby region. Garbage facilities will be wildlife-proof; see subsection 9.4.4 below for more information regarding wildlife and waste management.

Storage areas will be selected based on ease of vehicle access, security, and to ensure there will be no interaction with sensitive environmental features (e.g., surface water, steep slopes, wildlife or vegetation species at risk, highly permeable soils, and wetlands).

Safety Data Sheets (SDS) will be available for all hazardous products, as applicable, in the storage areas. The storage yard may be regularly inspected by an environmental liaison or someone with equivalent training to ensure materials are properly stored and categorized.

9.3.2 Site Suitability Considerations for Waste Disposal

The Project area has been assessed to identify surface/groundwater interactions and geotechnical stability. This site has little interaction between surface and groundwater and the site is stable for development of a reservoir. With proper precautions in effect, potential for waste spills or leakage effects on the subsurface soils and groundwater is limited. Waste may be stored on site temporarily, but the site itself will not be used for final waste disposal.

9.4 CHARACTERISTICS, QUANTITY, AND MANAGEMENT OF WASTES

Records of wastes, their locations and handling must be maintained for submission to the province, if required. The Eastern Irrigation District (EID) and all contractors/representatives will adhere to applicable regulations for waste management. As Project plans are being finalized alongside this Environmental Impact Assessment, exact volumes of wastes are unknown and are not discussed further.

9.4.1 Hazardous Waste and Dangerous Goods

Potential hazardous waste includes fuel, oil, grease, hydraulic fluid, spill-related waste, and herbicides and pesticides. All hazardous material will be stored and secured in approved containers and labeled according to appropriate regulations. A list of hazardous materials and SDS for all onsite hazardous materials will be accessible to all workers.

Hazardous waste materials, if any, will be collected and stored, removed from the site, or properly disposed at the end of each day. No hazardous waste will be stored long-term on site. A Fuels and Hazardous Materials Contingency Plan (see Volume 1, Section 11, Attachment 11-3) shall be followed. It is not anticipated that dangerous goods (such as explosives) will be present on site, therefore these are not discussed further.

9.4.2 Non-hazardous Waste

Solid wastes include garbage and debris generated by human activities, such as survey stakes and flagging, used geotextiles, polystyrene, other plastics, wood, and metal. These wastes are typically considered to be non-toxic or non-hazardous in nature, although they can pose some safety hazards to Project personnel, or local livestock/wildlife, as well as being a nuisance or eyesore to area residents. Garbage receptacles will be provided for any non-hazardous waste material that cannot be reused or recycled.

9.4.3 Recyclable Waste

All non-hazardous waste generated by the Project will be recycled or composted where feasible, if it can not be reused. Table 9-2 lists examples of wastes that can be reused, recycled, composted, or that will need to be disposed during the Project. All recycled material will be stored in proper storage containers and transported to the appropriate recycling facility according to the material.

Table 9-2: Anticipated waste and their classification

Material	Classification	Reuse/Recycle*/Disposal
Rock/Gravel	Non-hazardous	Reused or recycled if excess
Concrete	Non-hazardous	Recycled
Scrap metal	Non-hazardous	Recycled
Woody debris	Non-hazardous	Recycled or composted
Vegetation (stripped)	Non-hazardous	Stored with topsoil for reuse/composted
Weed materials	Non-hazardous	Disposed at appropriate facility
Food and Organics	Non-hazardous	Composted (off-site)
Garbage and litter	Non-hazardous	Landfill disposal
Paper/cardboard	Non-hazardous	Reused, recycled, composted, or disposed
Plastic	Non-hazardous	Reused, recycled, or disposed
Polystyrene	Non-hazardous	Recycled or disposed
Fuel	Hazardous	Tainted fuel will be disposed
Oil	Hazardous	Transported to proper facility for reuse or disposal
Grease	Hazardous	Disposal
Empty hazardous materials containers	Hazardous	Follow SDS
Spill related waste	Hazardous	Follow SDS, removed by hazardous material disposal company

*Materials need to be clean in order to be recycled.

9.4.4 Wildlife Management

Food and other waste materials can serve as a wildlife attractant and must be managed appropriately to avoid human-wildlife conflict and maintain public safety. Improper waste management can result in damage to vehicles and equipment, increased problematic wildlife interactions, and cause harm and/or death of wildlife. The following measures should be implemented on site during the duration of the Project with regards to wildlife management:

- All workers should be informed of proper waste disposal practices through training and kick-off meetings. Signage should be posted on the job site of the location of disposal areas and proper use protocols.

- Any food or other personal waste brought onto or created on site by workers during construction shall be properly disposed of and/or removed from site daily.
- Food and food waste are not to be left unattended unless secured in a vehicle or closed waste bin, to prevent wildlife from accessing these materials as food resources.
- Disposal bins and the surrounding area must be secure and clean. Waste bins should have secure lids to contain waste and prevent wildlife access.
- Additional measures can be taken where necessary including temporary fencing surrounding disposal areas to limit wildlife access to waste.

9.5 PLANS FOR WASTE REDUCTION

9.5.1 Pollution Prevention

See Volume 1, Section 11 for mitigations, management, and monitoring for the Project that includes topics relating to pollution prevention. Potential causes of pollution include but are not limited to deleterious substances entering waterbodies, deleterious gasses and particulates entering air, and noise pollution. Relevant sections from Volume 1, Section 11 include:

- Equipment Refueling and Servicing (Section 11.1.10);
- Air Quality (Section 11.2);
- Spill Prevention (Section 11.4.2);
- Water Quantity and Quality (Section 11.8);
- Wetlands and Waterbodies (Section 11.10.3);
- Attachments (11-4 Noise Management Plan, 11-7 Soil Handling and Erosion Contingency Plans, 11-10 Water Monitoring Plan; 11-11 Erosion and Sediment Control Plans, and 11-12 Instream Activities and Fish Salvage Plan)

9.5.2 Waste Minimization

To accomplish waste minimization during the Project, appropriate planning should occur before and during construction. This includes but is not limited to the sourcing of materials, using *in-situ* materials (i.e., reusing rock/gravel/soil from site), and properly maintaining vehicles and equipment. Product inventories should be completed on a regular basis and additional products should be obtained only when necessary and to the required quantity. Supplies should be purchased in batches to reduce materials associated with packaging and shipment.

9.5.3 Management

Construction and other onsite personnel will adhere to the Waste Management Plan (see Volume 1, Section 11, Attachment 11-5) and the mitigations and best practices section of this volume. Unused materials, construction debris, and waste shall be removed for disposal or storage at an offsite location. Construction waste materials and unrecyclable debris shall be continuously collected and disposed of at an approved facility to avoid attracting wildlife. Inert materials that will not leach chemicals or other substances may be temporarily stored onsite in a secure location. Food, water, and wastes with strong odours shall be stored in wildlife-proof containers or inside vehicles or temporary buildings.

After construction is complete, stakes, flagging tape, and fencing will be removed from the construction site and stored for reuse, recycle, or dispose of at an approved waste management facility. Prior to reservoir flooding, remaining garbage, waste materials, and debris will be removed

from the construction site. Floating debris, if any, shall be collected and disposed at regular intervals during filling.

9.6 HYDROCARBON STORAGE

Table 9-3 outlines the expected onsite hydrocarbons for the Project and the likely storage locations. As Project plans are being finalized alongside this Environmental Impact Assessment, exact volumes of wastes are unknown and are not discussed further.

Table 9-3: Potential hydrocarbon storage for the Project

Hydrocarbon type	Storage Location
Fuel	Fuel will be stored, labelled, transported, and used in accordance with regulatory requirements and best management practices. Storage will be within designated containment areas and will not occur within 100 m of a waterbody/watercourse.
Lubrication, hydraulic fluids	Mobile equipment; locked storage trailer

To prevent contamination of soils, if fuels, lubricants, or other chemicals are stored on site, storage tanks should be placed in a secure area where fuels cannot run into the surrounding environment. An impervious liner or absorbent surface layer may also be considered. If fuel trucks are used, spill management kits and proper filling procedures should be followed at fueling sites to prevent spills and contamination of soils.

9.6.1 Environmental Protection Measures

Prior to refueling and maintenance, drip pans and containment pans should be placed under equipment. Oil changes, refueling, and lubricating of mobile equipment must not be conducted within 100 m of water or watercourses to minimize the potential for water pollution. This includes wetlands prior to removal. A Fuels and Hazardous Materials Contingency Plan (see Volume 1, Section 11, Attachment 11-3) will be in place for refueling or servicing immobile equipment within 100 m of a waterbody, watercourse, or drainage.

All deleterious substances associated with oil changes, refueling, and lubrication shall be collected and disposed at an approved location. Fuel and service vehicles shall carry a minimum of 10 kg of suitable commercial sorbent material suitable for fuel spill containment and clean up on open water. These materials must be on site and accessible during in-water activity. When using portable refuelling trucks, a spill tray will be placed such that any spilled fluids can be captured. The spill trays must be large enough to handle overflow of fuel due to overfilling. Fuel nozzles shall be equipped with automatic shut-offs. Operators will be stationed at both ends of the fuelling hose, unless the ends are readily accessible by one operator.

There may be both portable fuel trucks and a fueling station. There should be no storage of fuel, oil, or fluids within 100 m upstream of any waterbodies. A logbook should be maintained documenting all fueling and maintenance events (date, time, location and condition of site, amount of fuel or maintenance event and any issues).

9.7 REFERENCES

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