

# Appendix H

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Waste Management Plan

# **TWO RIVERS WIND PROJECT WASTE MANAGEMENT PLAN**

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July 2022



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# Acronyms and Abbreviations

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Plan	Waste Management Plan
Project	Two Rivers Wind Project
Two Rivers Wind	Two Rivers Wind LLC
WECS	Wind Energy Conversion System

Two Rivers Wind LLC (Two Rivers Wind) is proposing to develop the Two Rivers Wind Project (the Project) on approximately 15,657 acres near the Town of Medicine Bow in unincorporated Carbon County, Wyoming. The Project area is composed of predominately private fee lands, with interspersed parcels administered by the State of Wyoming Office of State Lands and Investments and the Bureau of Land Management Rawlins Field Office. A lease has been negotiated with the Wyoming Office of State Lands and Investments for the use of State lands. Primary access to the Project area is from US 30/287 and WY 487.

The Project comprises development of a wind powered electric generation facility (Two Rivers I, II, and III). Two Rivers I, II, and III will be situated on 15,657 acres in Carbon County north of US 30/287 and the Town of Medicine Bow. The proposed facility will include up to 60 wind turbine generators (WTGs). Ancillary facilities would include an operations and maintenance building, one substation, a concrete batch plant, Met towers, access roads, an internal 34.5 kilovolt (kV) electrical collection system, and a Supervisory Control and Data Acquisition (SCADA) system.

Construction site preparation will be initiated following the ROW issuance in April 2023 and completed by December 2024. The workforce count will range from 11 to 170 people, depending on construction sequencing of primary Project components.

This Waste Management Plan (Plan) is developed to comply with BLM requirements, and also to requirements of the Carbon County Zoning Resolution, as required for the county conditional use permit application. This Plan identifies solid and hazardous waste to be generated by the Two Rivers Project and the proposed program for waste disposal, which includes strategies for waste minimization through salvage and reuse or recycling of materials. This Plan will be modified as needed to meet applicable regulations and to address the changing conditions and requirements of the Two Rivers Project.

## 1.1 Objectives

The objective of this Plan is to minimize the amount of waste generated by the Two Rivers Project to the extent practical. When possible, waste material generated will be recycled, salvaged, reused or otherwise diverted from direct landfill disposal. Recycling, reusing salvaged materials, and minimizing materials and packaging can reduce waste disposal costs and material expenses. Waste reduction will be achieved through best management practices and recycling or reuse efforts. The waste management activities described in this Plan will be maintained up to and including the decommissioning of the Two Rivers Project and reclamation of the Project area.

## 1.2 Licenses, Permits, Fees, and Taxes

All solid and hazardous wastes related to the construction, operation, maintenance and decommissioning of the Two Rivers Project will be handled, stored, and disposed of in accordance with this Plan and all applicable federal, state, and local laws and regulations. Two Rivers Wind and its contractor(s) will be responsible for any required fees, licenses, permits, and taxes.

The sections below describe the types and amount of solid waste to be generated by the Two Rivers Project during construction, operations, maintenance, and decommissioning.

## 2.1 Construction

The Two Rivers Project will generate municipal solid waste and construction waste during construction of roads and foundations, the electrical collection and transmission system, substations, and wind turbine generators. All solid waste would be collected in containers with lids, and would be handled as described below.

Typical wind projects in Wyoming have been estimated to generate approximately 24 cubic yards of solid waste per wind turbine generator and 2 cubic yards per construction worker annually, leading to an estimate of 2,083 cubic yards of solid waste for the Two Rivers Project throughout the Project construction and decommissioning phases. During the operation and maintenance phase approximately 19 cubic yards per year would be generated. The Two Rivers Project is expected to generate the following types of solid wastes:

- Packaging materials (e.g., plywood crates, wood pallets, plastic bags and wrapping, tarps)
- Construction debris (e.g., scrap steel, concrete, wood forms, wiring, flagging)
- Discarded erosion control materials (e.g., silt fencing, stakes, straw bales, hydromulch)
- Miscellaneous equipment and vehicle parts
- Containers, paper, food packaging/scrap, etc.

The generation of solid waste during the construction phases would be handled by a solid waste hauling and management firm contracted by Two Rivers Wind or their contractor(s). Two Rivers Wind or their contractor would solicit bids from waste management companies in the area. There are five roll-off dumpster companies near the Project site: Waste Connections, Wyoming Waste Systems, Waste Management, Dumpster Authority, and Dumpster Source. The contracted waste hauler would remove the portable dumpsters depending on the rate of waste generation from construction activities. Exact timing of waste removal and size of the portable dumpster would be determined based on the type of construction activities being conducted on-site. Solid waste would be hauled to disposal facilities in the Project vicinity (including landfills and recycling centers), examples of which are included in Table 1 at the end of this Plan.

## 2.2 Operations and Maintenance

During operations and maintenance of the Two Rivers Project, the estimated annual municipal solid waste generation is approximately 19 cubic yards per year. Up to eight full-time employees would perform routine operations and maintenance activities. Operations and maintenance staff would likely be located in Medicine Bow and Rock River and associated municipal solid waste would be



handled through curbside collection and delivered to a landfill in the Town of Hanna operated by the High Country Joint Powers Board.

## 2.3 Decommissioning

Two Rivers Wind anticipates salvaging as much of the decommissioned Two Rivers Project components and materials as possible. The options for wind turbine recycling are evolving, and are expected to be very different at the time of decommissioning than they are currently. Many of the wind turbine components and electrical materials have a high scrap value and will therefore be recycled. The current expectations for the recycling or landfilling of major Two Rivers Project components and materials are summarized below. The Plan will be updated prior to decommissioning to account for the options available at the time of decommissioning.

- **Wind Turbine Nacelles:** Transported to scrap yards where they will be disassembled, with components reused, scrapped, or landfilled.
- **Wind Turbine Blades/Nacelle Covers:** Most likely broken down and either landfilled or recycled depending upon options available at the time of decommissioning.
- **Wind Turbine Towers:** Transported to scrap yards where they will be recycled.
- **Substation Components:** Resold to reuse if possible, otherwise transported to scrap yards where they will be dissembled, with components reused, scrapped, or landfilled.
- **Recovered Aggregate:** Taken to nearby quarries where they will be reused locally.

The facilities listed in Table 1 at the end of this Plan provide examples of the types of facilities that could handle solid waste to be generated during Project decommissioning. Given the expected life of the facility (>30 years), disposal options are expected to change by the time the Two Rivers Project is decommissioned.

Two Rivers Wind and its contractor(s) will minimize the amount of construction waste and debris disposed of in landfills to the extent practical. Two Rivers Wind and its contractor(s) will be responsible for communication and training of field personnel and subcontractors regarding waste minimization.

### **3.1 Packaging**

Two Rivers Wind will encourage all vendors and their suppliers to minimize packaging for materials and equipment and to identify opportunities for the return of packaging materials for reuse. Two Rivers Wind will evaluate packaging materials and their selection will take into consideration opportunities for reuse and recycling.

### **3.2 Materials Storage**

Two Rivers Wind and its contractor(s) will store all materials in a manner to prevent contamination, expiration, and deterioration. This ensures that the material will meet the specified requirements and that unused or off-specification products will not become waste. Two Rivers Wind and its contractor(s) will implement inventory control procedures to minimize the volume of excess materials brought on-site.

### **3.3 Material Disposition**

Two Rivers Wind and its contractor(s) will store all waste within designated temporary waste collection areas until it is collected for transport to an approved disposal facility. Materials that can be recycled will be stored and transported separately. Used oil will not be mixed with other solid or hazardous waste and will be stored separately within appropriate secondary containment in accordance with all applicable rules and regulations. Any concrete waste will be hauled and disposed of at a permitted site. Sanitary waste will be handled by a licensed sanitary waste vendor or disposed of in a permitted wastewater treatment facility.

### **3.4 Recycling**

Recyclable materials for the Two Rivers Project may include paper, aluminum cans, corrugated cardboard, glass, aerosol cans, wood, plastic, and metals. Two Rivers Wind and its contractor(s) will provide containers for waste that is to be recycled. Containers will be clearly labeled as such with a list of acceptable and unacceptable materials and will meet all applicable rules and requirements for the recycling program. To the extent local recycling programs are available and can be implemented, these materials will be recycled. Table 1 identifies permitted facilities in the Project vicinity that accept materials for recycling.

## 3.5 Salvage and Reuse

Salvage is the recovery of materials for on-site reuse, off-site sale, or donation to a third party. Reuse is making use of a material without altering its form. Materials can be reused on-site or reused on other projects off site. To the extent practicable, Two Rivers Wind will arrange for salvage or reuse materials to divert them from landfills.

## 3.6 Refuse Disposal

Two Rivers Wind and its contractor(s) will not allow refuse to accumulate on-site for extended periods of time; refuse materials will be removed from the Two Rivers Project site on a regular basis. Refuse materials will be transported off site and legally disposed of. The location of permitted disposal facilities and the materials that they accept are listed in Table 1 at the end of this Plan.

Hazardous waste generation during construction and operation of the Project is described below.

## 4.1 Construction

It is anticipated that minimal hazardous wastes would be generated during construction of the Project. Potential generation of hazardous wastes could include lubricants, hydraulic and insulating fluids, and glycol-based coolants. Compressed gas cylinders for welding and cutting such as oxygen and acetylene and modest amounts of cleaning solvents, paints, and corrosion-control coatings could also be present. Any hazardous wastes generated during construction would be properly characterized and managed by Two Rivers Wind and their contractor(s) using established Spill Prevention, Control and Countermeasure protocols.

Two Rivers Wind and their contractor(s) will review any hazardous materials to be used on-site prior to authorizing their use on the Two Rivers Project and will monitor and limit the quantities of hazardous materials brought on-site to minimize the amount of hazardous waste generated. Two Rivers Wind and their contractor(s) will incorporate procedures for handling of hazardous materials into their workplace health and safety program prior to introducing the hazardous materials on-site. The procedures will identify all hazardous materials that will be used, stored, or transported on-site and will establish requirements for inspection, storage, inventory control, product substitutions, and disposition of excess materials. The procedures will also identify requirements for notices to emergency response agencies.

The handling of hazardous materials and waste would be done in accordance with all federal, state, and local laws and regulations. No extremely hazardous materials, as defined by 40 Code of Federal Regulations 355, are anticipated to be produced, used, transported, or disposed of during Project construction.

## 4.2 Operations and Maintenance

Hazardous waste generation during operation and maintenance of the Two Rivers Project is anticipated to be minimal and quantities would be well below the regulatory thresholds for small-quantity or large-quantity generator programs. Any waste generated would be handled to ensure the health and safety of the environment, operations and maintenance workers, and local residents in compliance with federal, state, and local laws and regulations. As part of the waste management bid for operation and maintenance of the Two Rivers Project, Two Rivers Wind would also contract services for oil waste disposal from Project facilities.

Below is a list of hazardous materials that could potentially be used during operation and maintenance of the Project:

- Simple Green (cleaner and degreaser)
- Oil-Flo (cleaner and degreaser)

- Mobil SHC 632 (gear oil)
- Mobilux EP1 (grease)
- Mobil SHC 524 (hydraulic fluid)
- Shell DIALA (R) A oil (mineral oil used as transformer coolant)
- Ethylene glycol (standard commercial antifreeze used in radiators)

None of the above listed products contains any compounds listed as “extremely hazardous” by the U.S. Environmental Protection Agency. All of these products would be used in small quantities and any potential spill would be contained to the wind turbine spill trap. Lubricating oils would be checked routinely and filled and changed as needed. Transformers would also be inspected regularly. Spent oils would be recycled with a certified waste contractor. The oil change would be performed up-tower where any accidental spills would be contained by the nacelle prior to prompt cleanup.

It is anticipated that all towers and ancillary equipment would arrive on-site already painted and aside from occasional touch-ups, would rarely need to be repainted during the life of the Project. Should any significant repainting of facilities be needed, it would be performed by qualified, licensed contractors.

## Chapter 5

# Permitted Disposal Facilities

Table 1 below lists permitted disposal facilities that could be used to dispose of municipal solid waste, hazardous waste, and recyclable materials generated by construction, operation, maintenance and decommissioning of the Two Rivers Project.

**Table 1. Permitted Disposal Facilities**

Name and Location of Facility	Materials Accepted
<b>Solid Waste</b>	
Rawlins Landfill Department, 915 3rd St., Rawlins, WY 82301	Construction material. Recycled household items: aluminum, cardboard, electronics, glass, oil, paper, and plastics.
Sweetwater Rock Springs Landfill, 50 County Rd. 64, Rock Springs, WY 82901	Construction material and contaminated soil. Recycled household items: aluminum, cardboard, paper, plastics, and steel cans.
High Country JPB Landfill, Hwy 72 E., Hanna, WY 82327	Construction material and small amounts of contaminated soil. Recycled household items: aluminum, cardboard, paper, plastics, and steel cans.
Saratoga Landfill, 110 E. Spring Ave., Saratoga, WY 82072	Construction material. Recycled aluminum, antifreeze, cardboard, electronics, glass, oil and oil filters, paper, plastics, tires, and yard debris.
Laramie Landfill, 1167 N. 4th St., Laramie, WY 82072	Construction material. Recycled household items: aluminum, cardboard, paper, plastics, and steel cans.
Cheyenne Landfill, 1461 Happy Jack Rd., Cheyenne, WY 82009	Construction material and contaminated soil. Recycled household items: aluminum, cardboard, paper, plastics, and steel cans.
Moffat County Municipal Solid Waste Landfill, 1806 County Rd. 107, Craig, CO 81626	Construction material and small amounts of contaminated soil. Recycled household items: aluminum, cardboard, paper, plastics, and steel cans.
Casper Landfill, 200 1886 Station Rd., Casper, WY 82609	Metal items. Non-CFC metal appliances. Tires. Household hazardous wastes: paint, oil, gas, pesticides, herbicides, cleaners, etc. Fluorescent light bulbs. Yard debris. Electronics.
<b>Hazardous Waste</b>	
Casper Special Waste & Diversion Facility, 1883 Stanton Rd., Casper, WY 82609	22 pounds per month per customer limit. Most of the hazardous materials potentially being disposed of would not count toward the limit.
Safety-Kleen, 6628 Coal Rd., Casper, WY 82601	All hazardous materials that would be produced.
<b>Recycle</b>	
Rawlins Recycling Center, 1524 East Daley St., Rawlins, WY 82301	Aluminum, cardboard, glass containers, paper, and plastics (#1-7), and steel cans.
V&V Salvage, Old Sinclair Hwy., Rawlins, WY 82301	Metal and salvage materials.

<b>Name and Location of Facility</b>	<b>Materials Accepted</b>
Pacific Steel & Recycling, 130 Hudson St., Mills, WY 82644 or 819 Elk St., Rock Springs, WY 82901	Aluminum, brass, copper, iron, lead, steel, tin, cardboard, batteries, and some plastics.
Ace Salvage Enterprises, Inc., 2724 Fort Sanders Rd., Laramie, WY 82070	Aluminum, brass, copper, steel, catalytic converters, radiators, batteries, and wiring.
Cheyenne Recycling, 809 W. College Dr., Cheyenne, WY 82007	Aluminum, brass, copper, lead, catalytic converters, batteries, and wiring.
Wyoming Salvage Co., 2222 Snyder Ave., Cheyenne, WY 82001	Aluminum, brass, copper, lead, steel, catalytic converters, radiators, batteries, and wiring.

## Chapter 6

# Environmental Training and Orientation

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Two Rivers Wind and their contractor(s) will implement an Environmental Training and Orientation Program, including Health, Safety, and Environmental training, for Two Rivers Project personnel specific to their job responsibilities to support compliance with environmental requirements, including waste management. The Two Rivers Wind Environmental Training and Orientation Program will be designed to consistently communicate expectations and applicable permit requirements to individuals working on the Two Rivers Project so that both managers and workers understand how to incorporate them into their daily work activities. All personnel working on the Two Rivers Project will be required to attend the training prior to accessing or working on-site. Training related to waste management will include general topics such as permit requirements, best management practices, spill prevention and cleanup measures, solid waste disposal, and recycling expectations. Multiple environmental training sessions may be required throughout the duration of the Project and will be conducted by Two Rivers Wind or designated contractors.