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Martin Solar Project, LLC Cumulative Environmental Assessment

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Abbreviations

BMPs	Best Management Practices
CFC	Chlorofluorocarbons
CO	Carbon monoxide
KAR	Kentucky Administrative Regulations
KDOW	Kentucky Division of Water
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrous oxides
PM	Particulate Matter
PPE	Personal Protective Equipment
SO_2	Sulfur dioxide
SWPPP	Stormwater Pollution Prevention Plan
US EPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1.0 INTRODUCTION

The purpose of this report is to satisfy the requirements of KRS 224.10-280 which states no person shall commence to construct a facility to be used for the generation of electricity unless that person submits a cumulative environmental assessment (CEA) to the Kentucky Energy and Environment Cabinet with the permit application. The Martin County Solar Project (Martin or Project) is a proposed 2,541-acre solar farm that will generate electricity with photovoltaic solar panels. Martin is located near Inez in Martin County (GPS Centroid 37.754926N -82.475534W). The proposed Project Site is located on mainly reclaimed mine land with small areas of intact forested land on the periphery.

Upon researching the statute and accompanying regulations, Martin is unaware of any regulations that have been promulgated regarding CEAs. To comply with KRS 224.10-280, the cumulative environmental assessment will evaluate potential project impacts to four areas: Air Pollutants, Water Pollutants, Wastes and Water Withdrawal.

2.0 AIR POLLUTANTS

The emission of air pollutants is regulated through the Clean Air Act, which through its regulations has established baseline National Ambient Air Quality Standards (NAAQS) for multiple pollutants in order to protect public health and welfare. The pollutants covered are ozone, particulate matter (PM), carbon monoxide (CO), nitrous oxides (NO_x), sulfur dioxide ($S0_2$), and lead.

Geographic areas with ambient concentrations of these pollutants that exceed the NAAQS are designated as areas of nonattainment, and new emissions sources in or near these areas are often subjected to more stringent permitting requirements.

Martin County and all surrounding counties (Lawrence, Pike, Floyd, and Johnson, Kentucky and Wayne and Mingo, West Virginia) are all in attainment for all pollutants (EPA 2021). Additionally, Martin County is protected by the Air Quality Regulations found in the Kentucky Administrative Regulations (KAR), Title 401 Chapters 50-68.

Increases in air pollutant emissions would occur during development and operation of the facility; however, emissions would be temporary in nature. Air pollutant emissions would result from operation and staging of supplies and construction equipment, worker personnel vehicles, and equipment and supply deliveries. The amount of increase in air pollutant emissions would vary by the construction activity, work force size, and weather conditions occurring on the site. It is estimated that up to 300 workers would be onsite at any one time during the up to 12-month construction period. When possible, work will be conducted during daylight hours, but at times it may be necessary to continue work after dark to complete critical construction activities. Construction and operation equipment would include, but not

be limited to, bulldozers, backhoes, flatbed semi-trucks, forklifts, bobcats and/or specialized tractors with extender or drill with auger or pile driver for installation of solar panel array posts, and concrete trucks.

Local emissions of PM, NO_x, CO, volatile organic compounds (VOCs), and SO_2 would be generated by both gasoline and diesel combustion engines. These emissions are anticipated to result in minor air quality impacts due to the limited durations, numbers of vehicles, and hours of operation. Tree clearing and associated actions are expected to be limited due to the site being primarily reclaimed mine land.

Activities related to construction at the site will result in temporary increases in air pollutant emissions (e.g., dust and other suspended particles). Dust increases will be a result of any grading and vehicle travel on unpaved roads. In order to reduce impacts to air quality, the Project will require contractors to implement best management practices (BMPs) such as wetting areas to reduce dust and covering loads to minimize dust emissions. Overall, impacts to air quality will be minor due to being localized and temporary in nature.

Solar facilities do not produce any emissions during operation, as such, the Project is not anticipated to emit any of the criteria pollutants (PM, CO, SO_2 NO_x, VOCs, or lead). In addition, no hazardous air pollutants are expected to be emitted from the facility during operation.

During operation the only anticipated emissions associated with the facility are those from maintenance vehicles, such as trucks used by technicians and equipment used during mowing and other vegetation control.

Based on review of the potential impacts to air quality, adverse effects are not anticipated during either construction or operational phase of the Project.

3.0 WATER QUALITY

3.1 SURFACE WATER

The Project is located in the Pigeonroost Fork (050702010504) and Upper Wolf Creek (050702010503) drainages within the Tug Fork watershed (HUC 05070201) and is drained by a combination of Pigeonroost Fork, Petercave Fork, a tributary to Pigeonroost Fork, and Wolf Creek (KYDOW 2020). The Project itself consists mainly of reclaimed mine land with small areas of intact forested land on the periphery. As such, vegetation is sparse, and the natural hydrology has been significantly altered. None of the waterways in or immediately adjacent to the Project have any special designation (e.g., Outstanding State Resource Waters, Coldwater Aquatic Habitats, or other Special Use Waters) from the Kentucky Division of Water (KDOW).

Construction activities may increase erosion and sedimentation which has the potential to impact onsite streams and wetlands. In order to minimize impacts, the Project will utilize the existing landscape where possible to eliminate grading. Where grading is unavoidable, it will be completed with earthmoving

machinery and the Project will make every effort to match existing slopes. Martin expects the Project to have typical storm water discharge during construction and intends to comply with KDOW's Construction Storm Water Discharge General Permit for any construction activities that disturb an acre or more. A Notice of Intent will be submitted before any work begins on the site; Martin will submit a Notice of Termination once work is complete.

Contractors will be required to use silt fencing, temporary sediment basins and traps, buffers around streams, wetlands, and open waters, and other BMPs in order to minimize the impacts of stormwater runoff. Martin or its contractor will prepare and implement a stormwater pollution prevention plan (SWPPP) to comply with KDOW requirements. These BMPs will be used during the construction phase through final vegetative stabilization to minimize sediment runoff into Waters of the U.S. and Commonwealth.

After construction, all disturbed areas will be seeded to the extent feasible using a mixture of native, pollinator friendly, low growing, noninvasive grass and herbaceous plant seed mix that is certified weed free by a reputable dealer. All plantings and other erosion control measures will be inspected and maintained until the Project Site is stable.

If necessary, only herbicides that are United States Environmental Protection Agency (US EPA) approved would be utilized for vegetation control on the site. Any herbicides used will be applied by Kentucky licensed commercial pesticide applicators, in accordance with label directions to limit any applications near waters of the U.S. or Commonwealth. This will reduce the risk of unacceptable aquatic impacts.

A small portion of the Project Site (10-20ac) will be used as temporary office trailer, worker parking, equipment and material staging or storage, and assembly areas for the duration of construction activities. Where possible, these will be placed in areas where the proposed solar array will be located. Once construction is complete, all office trailers, equipment, unused materials, and any debris will be removed from the Project Site.

Once construction is complete, Martin will have little to no impacts on surface water during operations and maintenance. BMPs will be utilized during any activities that may cause runoff of any sediments or pollutants.

3.2 GROUNDWATER

Groundwater is any water found under the earth's surface, including geologic formations which contain sufficient saturated permeable material to produce large quantities of water to wells and springs known as aquifers (USGS 1995). Aquifers are often used as sources of drinking water and irrigation. Any adverse impacts to groundwater could have significant social and economic impacts.

Development of the Project is not anticipated to have any negative impacts to groundwater. Rainwater would run off the panels and either be absorbed into the ground and enter the aquifer or be collected by nearby surface water features through surface sheet flow.

Hazardous materials in the form of fuels, lubricants and other fluids will be stored on site during construction and leaks and spills could potentially contaminate groundwater. However, contractors will utilize BMPs to minimize the risk of leaks and spills and implement plans and procedures to immediately address spills and leaks that do occur. These efforts will limit the risk of potential impacts to groundwater. Due to the use of BMPs, there are no anticipated direct adverse impacts due to construction of the Project on groundwater.

During construction and operation, it is possible that limited use of fertilizer and herbicides will be used at the project site. Any chemical use will be conducted in accordance with manufacturer's recommendations to reduce the risk of groundwater contamination.

Based on review of the potential impacts to water quality and given the minimal chemical use and implemented BMP's, it is unlikely that this Project will negatively impact any water resources in the area during the construction or ongoing operations phases.

4.0 WASTE

All waste generated during the construction and operation of the Project will be disposed of following all local, state and federal regulations.

Waste generated during construction activities will include wooden crates, pallets, cardboard boxes and other packaging material. Additionally, excess wiring and other random debris could be intermittently produced. No waste will be disposed of on the Project Site. Where practical, construction waste material will be recycled, and any material that cannot be recycled will be disposed of offsite at permitted facility. Construction contractors and subcontractors will be responsible for proper cleanup, disposal, and storage activities.

Primary construction materials stored on site will be liquids such as, used oil, diesel fuel, gasoline, hydraulic fluid, and other lubricants. Proper disposal containers, obtained by a waste disposal contractor, will be located at onsite staging areas. Waste materials generated during the construction process will be stored in appropriate containers specific to the waste material. The storage containers will have secondary containment in case of tank or vessel failure. Safety data sheets will be available to on-site personnel for all applicable materials.

Fueling of some petroleum fueled construction related machinery, such as tractors, trucks, and semi-trucks will take place on the Project Site. Other vehicles will be refueled on on-site layaway areas. Proper storage and handling procedures for preventing spills related to machinery re-fueling will be implemented by the construction contractor. Additionally, spill control kits will be carried on refueling vehicles.

Paint, degreasers, pesticides, herbicides, air conditioning fluids (chlorofluorocarbons [CFC]), gasoline, propane, hydraulic fluid, welding rods, and janitorial supplies may be stored on site in small quantities (less than 55 gallons, 500 pounds, or 200 cubic feet). Significant environmental impacts caused by a

potential spill are not anticipated due to the small quantity of materials and the implementation of proper clean up procedures.

Martin will develop and implement a Hazardous Material Business Plan to ensure the safe handling, storage, and disposal of hazardous materials. Proper personal protective equipment (PPE) will be provided to facility staff and they will be trained in proper use of PPE and the handling, use, and cleanup procedures of hazardous materials used on site. Adequate supplies of applicable clean up materials will be stored on- site.

Designated waste management companies will manage any waste generated on site. Waste produced on site is expected to be minimal and will be mainly related to maintenance or repair of construction equipment.

Additionally, portable chemical toilets will be placed on site for construction workers. Licensed contractors will be responsible for pumping sewage from the portable toilets. The sewage waste will be disposed of at a permitted location selected by the chemical toilet contractor.

Once construction is complete and the project is in the operation phase, no waste is expected to be generated from the site. Any waste generated during maintenance activities will be removed from the site and disposed of in accordance with state and federal regulations.

Based on review of the potential waste generation activities, adverse effects are not anticipated from general waste or wastewater treatment and disposal.

5.0 WATER WITHDRAWAL

Either existing or new (if required) water wells within the Project area will provide water during construction activities and ongoing maintenance.

Water use related to construction activities will include site preparation such as dust control and grading activities. The primary use of water would be for the grading of access roads, foundations, and equipment pads. Proper BMPs outlined in the SWPPP will be followed during any equipment washing and potential dust control discharges. Groundwater resources are not anticipated to be adversely affected by the volume of water required during the construction process.

Solar electricity operation is not a water-intensive process. Manual washing of solar panels is not anticipated. Rainfall is the region will suffice to remove dust and other debris from the PV panels. However, water will be used for vegetation management needs, including screening vegetation installation and during prolonged periods of drought.

6.0 REFERENCES

USGS 1995. Groundwater: What is Groundwater? (n.d.). Retrieved January 11, 2021, from https://www.usgs.gov/special-topic/water-science-school/science/groundwater-what-groundwater?qt-science_center_objects=0#qt-science_center_objects