

Consequently, basic visibility is relatively unavoidable except in extremely remote locations. The perception of wind turbines, solar power devices and related facilities generates different reactions from different people. Some people find man-made intrusions of this type or other changes in a viewshed objectionable, while others may find turbines, new devices or even research buildings attractive and/or interesting subjects for viewing from roads and trails given their purposes.

Extension of the natural gas line from Highway 93 would have inconsequential long-term visual impacts because the line would be placed underground and the site would be restored according to NREL programs and policies. The construction process for the northern option would temporarily disturb the natural condition of the upper reach of Coal Creek, which is visible from Highway 93 (see Figure 3-2, photograph 21). The construction process for the southern option would be equally visible, but would have less impact because it would involve previously disrupted areas.

Off-site, above ground electricity system improvements would also be visible, but the impact would be inconsequential or minor from public vantage points due to intervening topography and landscape characteristics.

#### **4.5.2 Impacts of the No Action Alternative**

The No Action alternative would leave overall site features and associated visual elements unchanged, but views of the site would continue to change with new turbine and tower configurations. The overall number of turbines and towers would remain relatively constant because no new test sites would be added.

### **MITIGATION MEASURES**

There are no significant impacts; therefore no mitigation measures are required under NEPA.

## **4.6 WATER RESOURCES**

Water resource impacts are typically indicated by degradation of the quality of the surface water and groundwater. This section discusses potential impacts to surface water and groundwater from the proposed construction and operating activities. Sampling of surface water and groundwater and/or modeling were not performed in association with the preparation of this section.

Site planning, standard procedures, and the NWTC's "Stormwater Pollution Prevention Program for Construction Activities" would address potential impacts on water resources. Any future incremental and cumulative impacts to surface water, groundwater and stormwater would be insignificant.

### **4.6.1 Surface Water and Stormwater Impacts**

Potential impacts to surface water resulting from the implementation of the Proposed Action would not be significant because NREL's existing programs, policies and practices would avoid or minimize impacts to stormwater during construction and operations at the NWTC. The Proposed Action would not substantially alter surface water hydrology.

Disruption of the surface soils during pipeline construction could result in the transport of sediment in nearby drainages by stormwater. Turbidity in stormwater may increase from wind and water deposition during grading operations; however, the larger drainages within the site are largely avoided.

The northern natural gas pipeline alignment could have slightly more impact in the form of sediment transport than the southern alignment because of its proximity to the upper reach of Coal Creek and the naturally occurring drainages in the vicinity. There could be a minor increase in particulates transported on-site resulting from the construction of new parking areas and additional vehicle use on the site.

Stormwater volume may increase after implementation of the Proposed Action because of a small increase in impervious surface areas. If the volume of stormwater does increase, the additional amount should be small, and it is not expected to cause flooding, contribute significantly to erosion of stormwater channels, or require substantial infrastructure modifications.

#### **4.6.2 Groundwater Impacts**

Site development would incrementally reduce on-site groundwater recharge by creating an additional amount of impervious surface on the site. This loss would represent a small percentage of the total NWTC site acreage and would not have meaningful consequences on recharge or groundwater availability.

Groundwater may be encountered during excavation of the alluvium for test site foundations and building construction, depending on seasonally and geographically fluctuating groundwater levels. It is expected that most of the construction activities are likely to occur without disturbing groundwater. In the event that the water table is encountered, water would be pumped out of the excavation onto the ground and returned to the alluvium via seepage through the soil. There would be no significant impact to the unconfined aquifer from this water removal and subsequent discharge.

In the case of a spill or release of chemicals or hydrocarbons during construction, existing best management practices and procedures associated with spill response and materials handling would minimize subsurface impacts.

Sewage output would increase and would be handled by additional septic systems and leach fields. The poor permeability and slow percolation of the soil limits the effectiveness of individual sewage disposal systems. However, septic tank and leach field sizes would be based on anticipated loads from maximum staffing and soil characteristics. The adequacy of the system would be verified by CDPHE through their permitting process. Compliance with State standards ensures that septic and leach field systems are adequate to meet the needs of a proposed sewage system. Consequently, impacts to groundwater would be insignificant.

#### **4.6.3 Impacts of the No Action Alternative**

The No Action Alternative would have no impacts to surface water, stormwater, or groundwater resources. Implementation of this No Action Alternative would preclude minor and incremental impacts resulting from improvements associated with the Proposed Action.

## **MITIGATION MEASURES**

There are no significant impacts; therefore no mitigation measures are required under NEPA.

### **4.7 GEOLOGY AND SOILS**

This section discusses the assessment of potential environmental impacts to geologic resources and soils during site preparation, construction, and operation of the expanded facility. Impacts to the geological, mineral, and soil resources at the site resulting from the Proposed Action are expected to be insignificant.

#### **4.7.1 Impacts on Mineral Resources**

The proposed action would have no adverse impacts on mineral resources under the site and presents no immediate or substantial conflicts with the existing Utility Right-of-Way Grant of Easement or MOU. However, if the moratorium set forth in the MOU were not extended after the defined termination date, new buildings and facilities would limit surface access in a few locations. This loss of access would not be considered a significant impact because it would represent a very small proportion of the area available for future mining and these features could be removed if the site is decommissioned.

#### **4.7.2 Impacts to Geological Resources and Soils**

Resources such as concrete aggregate, crushed rock, and asphalt would be required during construction at the expanded facility. These materials could easily be obtained through commercial sources.

Construction or operational activities under the Proposed Action would not precipitate seismic activity in the vicinity of the site since there would be no injection of fluids. Excavation for new structures would probably not occur below the alluvial surface, approximately 40 feet deep, minimizing the need to blast for construction purposes.

The relatively flat terrain at the site is not physically predisposed to the occurrence of landslides that could be exacerbated by precipitation on surfaces exposed or denuded as a result of construction activities (see Section 4.6 Water Resources). There would be some loss of soils due to the physical alteration of the existing soil profile. However, the nonproductive attributes of most of the site's soils preclude agricultural productivity, therefore the loss of these non-productive soils would be insignificant.

The impacts to land use, loss of vegetation and habitat are described in Sections 4.1 and 4.8. Impacts to water drainage and water erosion are described in Section 4.6.

#### **4.7.3 Impacts of the No Action Alternative**

The No Action Alternative would result in no impacts to geological resources. Minor impacts to soil resources from ongoing site activities would be expected.