Population and Housing - Potential impacts would be the same as for the construction phase.

Community Services and Public Finance - Potential impacts would be the same as for the construction phase.

5.2.3 CULTURAL RESOURCES

This section presents potential impacts to cultural resources from implementing the proposed waste processing alternatives described in Chapter 3. The analysis of potential impacts to cultural resources, which is based on the ***six*** waste processing alternatives described in Chapter 3, focuses on archaeological and historic sites, areas of cultural or religious importance to local Native Americans, and paleontological localities on the INEEL. Because one of the alternatives (Minimum INEEL Processing) involves shipment of mixed HLW to the Hanford Site for treatment, possible impacts to Hanford cultural resources were also evaluated (see Appendix C.8). Unless otherwise noted, however, the discussion of impacts presented in this section specifically applies to the INEEL. DOE assessed potential impacts by (a) identifying project activities that could directly or indirectly affect cultural resources, (b) identifying the known or expected cultural resources in areas of potential impact, and (c) determining whether a project activity would have an adverse effect on these resources.

DOE evaluated both direct and indirect potential impacts. Direct impacts to archaeological resources are usually those associated with ground disturbance from construction activities. Direct impacts to archaeological sites may result from vandalism due to increased access to sites. Direct impacts to existing historic structures could result from demolition, modification, or deterioration of the structures; isolation from or alteration of the property's setting; or the introduction of visual, auditory, or atmospheric elements that are out of character with, or alter, the property's setting. Direct impacts to traditional Native American cultural resources could occur through land disturbance, vandalism, or alteration of the environmental setting of traditional use and sacred areas.

Indirect impacts to traditional Native American cultural resources could occur from an overall increase in activity brought about by the construction and operational workforces employed under the waste processing alternatives. The Shoshone-Bannock Tribes embrace a holistic approach to protection of Native American cultural resources and land. This approach encompasses all the components of the environment, such as the air, soils, plants, and animals, and ascribes greater value to the whole than would be found by adding the individual components. Section 4.4 discusses the holistic approach in greater detail. Non-traditional activities in the region (e.g., construction and operation of waste processing activities) are considered by the Shoshone-Bannock Tribes to diminish the quality of the cultural setting when they can be seen or heard from sacred or traditional-use areas. The broad, open expanse of the Eastern Snake River Plain allows a high degree of visibility for long distances, thus increasing the potential for impacts of this nature. From the tribal perspective, the ideal level of non-traditional activity in the region would be zero; however, because activity is on-going in the region, DOE has established the current level of activity as the baseline for the analysis.

5.2.3.1 Construction Impacts

Most of the activities associated with HLW management at INEEL would take place inside the perimeter security fence at INTEC, an area that has been highly altered by development and dedicated to industrial use for more than 40 years. Because extensive ground disturbance has already occurred within the fenced perimeter of the INTEC, it is unlikely that new construction or remediation activities would disturb archaeological resources. There are no existing known archaeological sites within the fenced perimeter at INTEC. Therefore, none of the alternatives is likely to result in direct or indirect impacts to archaeological sites within the fenced perimeter at INTEC. Activities outside the fence are more likely to result in impacts to archaeological sites.

Under the Separations and Minimum INEEL Processing Alternatives, DOE may choose to dispose of the low-level waste fraction onsite. If

so, a new Low-Activity Waste Disposal Facility could be built in a previously undisturbed area approximately 2,000 feet east of the INTEC Coal-Fired Steam Generating Facility, outside the existing security perimeter fence. Prior to construction, this area would be surveyed for archaeological resources. If any archaeological resources are located during the survey, DOE would work in consultation with the State Historic Preservation Office, the Advisory Council on Historic Preservation, and the Shoshone-Bannock Tribes. Upon completion of disposal activities, an engineered cap would be placed over the disposal facility and if a soil cap is used it would be revegetated with native species. The waste disposal facility would blend naturally into the landscape over time.

The INEEL has implemented strong "Stop Work" stipulations in the event that archaeological resources or human remains are discovered during any project implementation. These stipulations include provisions for notification of, and consultation with, the State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the Shoshone-Bannock Tribes in accordance with National Historic Preservation Act and Native American Graves Protection and Repatriation Act (Ringe-Pace 1998, Yohe 1995). Additionally 36 CFR 800.13(b) (regarding inadvertent discoveries) mandates that a reasonable effort be made to avoid, minimize, or mitigate adverse effects to any discovered items.

There are 38 known historic properties within the INTEC fence, but none are expected to be directly or indirectly affected. Reuse of historic structures must be considered prior to acquiring, constructing, or leasing new structures (National Historic Preservation Act Section 110). Under the Continued Current Operations Alternative, DOE would modify the New Waste Calcining Facility. The New Waste Calcining Facility would also be modified under the Planning Basis, Hot Isostatic Pressed Waste, and Direct Cement Waste Options. DOE would disposition these facilities at the conclusion of waste processing activities. These buildings were determined in 1997 to be too recently built to be evaluated for their historic significance. They will be reassessed for their eligibility for nomination to the National Register of Historic Places at a later date, or prior to modification or demolition. Also, these buildings could be eligible for nomination to the National Register of Historic Places under Criterion G, "exceptional significance"; however, this eligibility must be conducted in consultation with the Idaho State Historic Preservation Office and the Advisory Council on Historic Preservation. If the buildings are determined to be eligible for nomination to the National Register of Historic Places, a Memorandum of Agreement would be required to ensure the mitigation of impacts. Stipulations to mitigate adverse impacts contained within this Agreement would be negotiated by DOE with the State Historic Preservation Office. Therefore, the only sources of potential impacts to cultural resources during construction on the INEEL are from emissions and overall increases in worker numbers and traffic under the alternatives.

5.2.3.2 Operational Impacts

No Action Alternative – This alternative assumes the New Waste Calcining Facility calciner would be placed ***in*** standby ***by*** June 2000 ***(completed May 2000)***. A new Calcine Retrieval and Transport System would be required to move calcine from bin set 1 to bin set 6 or 7; no other HLW facilities would be built. The calciner would be shut down; therefore, minimal process emissions would be generated. There would be fewer workers employed at INTEC (see Section 5.2.2) and a corresponding decrease in traffic (see Section 5.2.9) under this alternative. DOE expects that no potential impacts to cultural resources would occur from this alternative. No adverse visual or auditory impacts would occur to the archaeological, historic, or cultural resources setting on the INEEL or along the transportation routes as a result of the implementation of the No Action Alternative at INTEC.

Continued Current Operations Alternative – Under this alternative, current HLW management activities would continue after the New Waste Calcining Facility has been upgraded. Several INTEC facilities, including the New Waste Calcining Facility, would be upgraded or expanded, and the remaining mixed transuranic waste/SBW would be calcined beginning in 2011. Air emissions from the existing calciner stack would continue at a reduced level after

Maximum Achievable Control Technology upgrades, resulting in decreased visual degradation of the cultural setting of the INEEL and adjacent lands. Stack emissions from the calciner would be substantially reduced upon completion of mixed transuranic waste/SBW calcining operations in 2014. Calcining operations and associated stack emissions would cease after 2016. After 2016, no potential impacts to cultural resources would occur from emissions. Section 5.2.6, Air Resources, discusses emission levels in greater detail. There would be approximately the same number of workers employed at INTEC (see Section 5.2.2) and no change in the level of traffic (see Section 5.2.9) under this alternative; therefore, DOE expects that impacts to cultural resources other than the facility modifications would not occur from this alternative. The modifications would be mitigated through an agreement with the State Historic Preservation Office.

Separations Alternative – This alternative would require a number of new waste management and support facilities within the developed portion of INTEC under the Full Separations, Planning Basis, or Transuranic Separations Options (see Table 5.2-1). Some temporary visual degradation of the cultural setting of the INEEL and adjacent lands would occur from process air emissions under this alternative. Stack emissions from all waste processing operations would cease upon completion in 2035. Section 5.2.6, Air Resources, discusses emission levels in greater detail. In general, this alternative would employ the greatest number of workers at INTEC (see Section 5.2.2). This would result in the highest increase in traffic (see Section 5.2.9) among the alternatives on the INEEL property. This increase, however, would be small relative to existing levels; therefore, DOE does not expect impacts to cultural resources from this alternative.

Non-Separations Alternative – This alternative would require a number of new waste management and support facilities within the developed portion of INTEC (see Table 5.2-1). Some temporary visual degradation of the cultural setting of the INEEL and adjacent lands would occur from process air emissions under this alternative. Stack emissions from all waste processing operations would cease upon completion in 2035. After 2035, no potential impacts to cultural resources would occur from emissions. Section 5.2.6, Air Resources, discusses emission levels in greater detail. In general, increased employment would result in approximately the same number of workers employed at INTEC under this alternative as under the Separations Alternative (see Section 5.2.2). Similarly, the increased traffic on INEEL would be approximately the same as the traffic under the Separations Alternative (see Section 5.2.9) and would be small relative to existing levels; therefore, DOE does not expect impacts to cultural resources from this alternative.

Minimum INEEL Processing Alternative – Under this alternative, a small number of new waste management and support facilities would be built within the developed portion of INTEC. Some minor temporary visual degradation of the cultural setting of the INEEL and adjacent lands would occur from air emissions under this option. Emissions from all waste processing operations would cease upon completion in 2035. After 2035, no potential impacts to cultural resources would occur from emissions. Section 5.2.6, Air Resources, discusses emission levels in greater detail. In general, this alternative would result in fewer workers employed at INTEC (see Section 5.2.2) than under the Separations or Non-Separations Alternatives. Similarly, the increased traffic on the INEEL would be substantially less than the traffic under the Non-Separations Alternative and would be small relative to existing levels; therefore, DOE does not expect impacts to cultural resources at INEEL from this alternative.

In addition, two new facilities could be built within the 200-East Area of the Hanford Site under the Interim Storage Scenario. These activities would be carried out in accordance with the *Hanford Cultural Resources Management Plan* (Chatters 1989) to identify and evaluate cultural resources associated with the project locations and mitigate possible damage to those cultural resources. Employment and the corresponding increase in traffic at Hanford would be substantially higher under this alternative (see Appendix C.8) than they would be at INEEL under all the other alternatives. The increase in traffic, however, would still be small in comparison with existing levels; therefore, DOE expects no impacts to cultural resources at Hanford under this alternative.

Direct Vitrification Alternative – This alternative would require a number of new waste management and support facilities within the developed portion of INTEC (see Table 5.2-1). The greatest number of new facilities would be associated with the Vitrification with Calcine Separations Option. Some temporary visual degradation of the cultural setting of the INEEL and adjacent lands would occur from process air emissions under the Direct Vitrification Alternative. Stack emissions from all waste processing operations would cease upon completion in 2035. Section 5.2.6, Air Resources, discusses emission levels and air impacts in greater detail. In general, increased employment would result in approximately the same number of workers employed at INTEC under this alternative as under the Separations Alternative (see Section 5.2.2). This would result in the Direct Vitrification Alternative having the highest increase in traffic. This increase, however, would be small relative to existing levels. Therefore, DOE does not expect impacts to cultural resources from the Direct Vitrification Alternative.

5.2.4 AESTHETIC AND SCENIC RESOURCES

5.2.4.1 Methodology

This section presents potential aesthetic and scenic resource impacts from implementing the proposed waste processing alternatives described in Chapter 3. DOE assessed potential impacts by reviewing project plans for the ***twelve*** proposed options that define the ***six*** alternatives to determine if (1) project activities would be likely to produce aesthetic and scenic resource changes and (2) those changes would likely result in significant impacts to the aesthetic and scenic resources of the INEEL and its adjacent lands. Because one of the alternatives (Minimum INEEL Processing) would involve shipment of calcined HLW to the Hanford Site for treatment, possible impacts to Hanford's aesthetic and scenic resources were also evaluated (see Appendix C.8). Unless otherwise noted, however, the discussion of impacts presented in this section applies specifically to the INEEL. DOE did not analyze separately the ***twelve*** individual options within the ***six*** alternatives because there are no significant distinctions between them for the purposes of the aesthetics analysis. In order to keep the discussions clear, concise, and easy to compare, this analysis presents only the differences between the alternatives.

Most of the waste processing activities would take place inside the perimeter security fence at INTEC, an area that has been highly altered by development and dedicated to industrial use for more than 40 years. Potential impacts to aesthetic and scenic resources include (a) the addition or modification of structures and (b) the addition of construction and process emissions that could alter the view. Determination of significant visual resource degradation from new or modified structures is based on the extent of modification to the area. The definition of the degree of acceptable modification considers the nature, density, and extent of sensitive visual resources that contribute to the visual character of an area. If construction activities and ground disturbances associated with the alternative could result in a visual impact that is incompatible with the general setting and the Bureau of Land Management Visual Resource Management Class designation for the area, DOE would consider the impacts to be significant.

DOE used conservative screening-level methods to quantitatively assess impacts to visibility at Craters of the Moon National Wilderness Area, which at ***27*** miles ***west-***southwest of INTEC is the nearest Class I area. The results (see Appendix C.2 for numerical results) indicate that predicted levels of particulate matter and oxides of nitrogen from any of the HLW processing alternatives would be well below the numerical criteria that represent a threshold for perceptible impacts. ***Additional modeling using the Park Service-recommended CALPUFF model, indicates that numerical visibility criteria (namely, a 5% change in 24-hour light extinction) could be exceeded on 8 days out of a 5-year simulation period. This would occur at Craters of the Moon under the Planning Basis Option; all other options would have less impact, and there would be no impacts on visibility at Yellowstone or Grand Teton National Parks.***

Visual resources include the natural and man-made physical features that give a particular