6.0 ALTERNATIVES ANALYSIS

6.1 ALTERNATIVES CONSIDERED

MDNR considered three alternatives for the decommissioning plan: 1) complete removal of waste cell contents (both radiological and chemical hazards); 2) removal of only the radiological hazard from the waste cell; and 3) the preferred alternative, as described in the Tobico Marsh SGA Site Decommissioning Plan, which is essentially a "No Action Alternative" in that it does not result in the removal of source term.

If the no action alternative is employed, the existing facility description portrayed previously in Section 3.0 of the DP will continue to prevail at the site. The land is held in public trust, exists within a state game area and protected wetlands, and is part of the State of Michigan's parks system. Passive recreational use of the land and its surrounding environs is anticipated.

Residual radioactivity at the site has shown to be completely contained within the engineered cell, and prospective dose modeling indicates that there is little risk that radioactivity derived from the site might migrate resulting in additional exposure potential to the population. As a result, there are no anticipated impacts or health effects to the population in the adjacent community as a result of implementing the no action alternative.

Property values in the adjacent community do not appear to be influenced by the presence of the existing industrial waste disposal site. The site had long been in use as a disposal site for "other than radiological" industrial wastes before thorium-bearing slag was introduced. Removal of the portion of waste having residual radioactivity from the site, would not alter the fact that the site would still contain other industrial wastes. Land use is not adversely impacted due to the presence of the thoriated slag, and no land use restrictions deriving from the presence of the deposited radioactivity are warranted.

Given that the current conditions at the site are stable, and that the residual radioactivity in the disposal cell is essentially immobile in the environment, the no action alternative results in the least impact to the geology, hydrology, air quality, and ecology in and around the site.

As discussed in Section 3.0 of the DP, there are no identified low-income or minority populations within a 4-mile radius of the site. Furthermore, no natural resources will be consumed by the no action alternative, nor do natural resources of substantive economic value exist at the site.

There are no permits, licenses, approvals, or other entitlements required to implement the proposed no action alternative.

6.2 RATIONALE FOR CHOSEN ALTERNATIVE

The two "action" alternatives are positive in theory, in that both would effectively remove the radioactive source term from the site and obviate the need to consider any future exposure potential from residual radioactivity to a receptor at the site. However, either alternative would have required the removal of the currently installed clay cover, thus exposing workers, residents of the area, and the environment to the chemical hazards buried within the waste cell. In addition, access roads would be required to be constructed, or improved, to facilitate the movement of heavy equipment and materials to and from the site, scarring the landscape of the SGA. The construction of a rail spur, if necessary for waste shipment, would increase the magnitude of damage and scarring of SGA lands. Spills during the transport of chemical or radioactive waste removed from the waste cell could negatively impact the currently unaffected landscape and require additional remediation activities of previously unaffected wetlands. Local wildlife and its habitat would be temporarily disturbed during the construction of access roads and the rail spur, as well as during remediation of the waste cell.

The environmental impact presented by the release of the chemical constituents contained within the waste cell, realized or potential, limited the detailed evaluation of either of the two "action" alternatives. During the consideration of the alternatives, it was determined that neither alternative was an environmentally sound option, and therefore, both were rejected as infeasible.

The subsurface residual radioactivity at the site has been shown to be confined laterally to the area circumscribed by the installed slurry walls and vertically to the contaminated layer just beneath the cover. The potential for exposure to an offsite receptor resulting from the migration of radioactivity is constrained by the surface soil erosion rate (coupled with the cover thickness) and by the low ability of radioactivity to migrate via groundwater at the site. By considering the radionuclide concentrations in various media (e.g., surface water, surface soil, etc.) projected for 1,000 years into the future, the potential for offsite dose from migration of radioactivity in the subsurface soil source term can reasonably be eliminated. The RESRAD modeling, which is very conservative, shows that at no time over the 1,000 year outlook period are concentrations of radionuclides projected to be present in either environmental media or in food products. The absence of radioactivity in these media, while taking into account the potential erosion of the cover and the immobility of radionuclides in groundwater, suggest that offsite dose is not a concern even if the slurry walls should leak. Consequently, no environmental degradation due to the migration of radioactivity is anticipated from the no action alternative.

The preferred alternative—no action—as described in this decommissioning plan, offers the environmentally preferable alternative, and is the most technically feasible and fiscally responsible of the three alternatives. It also eliminates the unacceptable risk of damage to the environment from chemical contamination and road or rail spur construction caused by the "action" alternatives, neither of which would result in a meaningful reduction in dose.