

**Finding of No Significant Impact (FONSI)
and
Final Environmental Assessment for the
Oak Ridge National Laboratory
Facilities Revitalization Project**

June 2001

U.S. Department of Energy
Oak Ridge Operations
P.O. Box 2001
Oak Ridge, TN 37830

FINDING OF NO SIGNIFICANT IMPACT

ENVIRONMENTAL ASSESSMENT FOR THE OAK RIDGE NATIONAL LABORATORY FACILITIES REVITALIZATION PROJECT

AGENCY: U.S. DEPARTMENT OF ENERGY

ACTION: FINDING OF NO SIGNIFICANT IMPACT

SUMMARY: The U.S. Department of Energy (DOE) has completed an environmental assessment (DOE/EA-1362) for revitalization of facilities at the Oak Ridge National Laboratory in Oak Ridge, Tennessee. Based on the results of the impact analysis reported in the EA, DOE has determined that the proposed action is not a major Federal action that would significantly affect the quality of the human environment within the context of the National Environmental Policy Act of 1969 (NEPA). Therefore, preparation of an environmental impact statement is not necessary, and DOE is issuing this Finding of No Significant Impact (FONSI).

PUBLIC AVAILABILITY OF EA AND FONSI: The EA and FONSI may be reviewed at and copies of the document obtained from:

U.S. Department of Energy
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Public Reading Room
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Phone: (865) 241-4780.

FURTHER INFORMATION ON THE NEPA PROCESS: For further information on the NEPA process, contact:

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BACKGROUND: The DOE-Oak Ridge Operations (ORO) Office plans to implement a Facilities Revitalization Project (FRP) at the Oak Ridge National Laboratory (ORNL) in Oak Ridge, Tennessee. The FRP would be accomplished through a cooperative effort between DOE, the State of Tennessee, and private entities. The goal of this collaboration is to modernize some ORNL facilities, maintain ORNL's competitive research and development (R&D) capabilities, to enhance worker health and safety, and to reduce operating costs. DOE prepared an environmental assessment (EA) as part of the decision-making process to assess potential environmental impacts of the project in accordance with the *National Environmental Policy Act* (NEPA) of 1969.

Proposed Action. The proposed action is to construct new facilities on Brownfield land and to remodel numerous existing facilities in order to relocate ORNL staff currently housed at the Y-12 National

Security Complex, other Oak Ridge Reservation (ORR) facilities, and in commercial office space from aging, inefficient facilities to new or remodeled facilities. The new and remodeled facilities would enhance research capabilities and worker safety, while operating more efficiently. Approximately 167,225 square meters (m²) [1.8 million square feet (ft²)] of space in aging buildings, mostly at the Y-12 National Security Complex, would be deactivated. Up to six buildings at the ORNL would potentially be demolished. Ongoing operations that are included under Alternative 1 - No Action would also continue under the Proposed Action.

Conceptual plans for the FRP include construction of up to 24 new facilities totaling approximately 111,484 m² (1.2 million ft²) in research and support space. The proposed Brownfield areas for the new construction are in Bethel Valley near the main ORNL entrance and near the West Portal, near the West Portal in Melton Valley, and within the recently established footprint for the Spallation Neutron Source (SNS) facility. Some of the new construction will be funded by the State of Tennessee and the private sector. Up to 20 hectares (ha) (50 acres) of Brownfield property in Bethel Valley could be transferred from DOE to the State and the private sector in support of this proposed action. Capital funding required for the Proposed Action is estimated at \$439.9 Million, and resulting annual ORNL costs would be an estimated \$53.8 Million per year.

ALTERNATIVES: In addition to the proposed action, impacts were evaluated for three other alternatives in the EA.

Alternative 1 - No Action, ongoing operations would continue, no new FRP buildings would be constructed, and no remodeling would be conducted. Ongoing operations would include research and development (R&D) activities, projects with already completed NEPA reviews, general maintenance, repairs and other types of “landlord” projects. Costs of the No Action alternative would be the annual ORNL costs of an estimated \$75.7 Million per year.

Alternative 2 - Remodel, actions would be limited to remodeling six existing buildings; no new FRP facilities would be constructed. Five aging buildings would be deactivated and maintained in a safe, “cheap-to-keep” mode, and four of these would be potentially demolished under Alternative 2. ORNL staff currently housed in the facilities that would be deactivated would be relocated to the remodeled facilities. The ongoing operations included under Alternative 1 would also continue under Alternative 2. Capital funding required for Alternative 2 is estimated at \$130.2 Million, and resulting annual ORNL costs would be an estimated \$74.9 Million per year.

Alternative 3 - Brownfield, the Preferred Alternative, is the Proposed Action as described above.

Alternative 4 - Greenfield, the FRP would include the same construction, remodeling, deactivation, demolition, and staff relocation as just described for Alternative 3. New construction would still occur in Melton Valley as described under Alternative 3, and one of the facilities would still be constructed at the SNS site as under Alternative 3. However, construction of most new facilities, and all potential land transfers, would be on Greenfield land. The potential Greenfield area for the new construction would be in Bethel Valley near the main ORNL entrance and to the north of Bethel Valley Road. As under Alternatives 2 and 3, the ongoing operations included under Alternative 1 would also continue under Alternative 4. Capital funding required for Alternative 4 is estimated at \$455.5 Million, and resulting annual ORNL costs would be an estimated \$53.8 Million per year.

ENVIRONMENTAL IMPACTS:

ALTERNATIVE 1 - NO ACTION

Earth Resources Impacts. Under Alternative 1, no FRP construction or other activities that could potentially increase soil erosion or disturb underlying materials would take place. Therefore, no FRP effects to geology and soils would occur.

Water Resources Impacts. Under Alternative 1, no FRP construction or other activities that could potentially affect groundwater use or quality would take place. No changes in underlying water usage would occur. No new withdrawal or discharge to surface water would be anticipated. Therefore, no FRP effects to groundwater or surface water would occur. However, over the long-term, aging water lines in buildings could result in greater potential for exfiltration and infiltration of shallow groundwater leading to contaminant releases.

Ecological Impacts. Under Alternative 1, no FRP construction or other activities that could potentially affect local ecology, wetlands, or protected species would take place. Therefore, no FRP effects to ecology, including wetlands and protected species would occur.

Cultural Impacts. Under Alternative 1, no FRP construction or other activities that could potentially affect cultural resources would take place. Therefore, no FRP effects to cultural resources would occur.

Air Quality Impacts. Under Alternative 1, air emissions would not change as a result of FRP activities since the activities that would be conducted under this alternative are already being conducted.

Noise Impacts. Under Alternative 1, noise levels would not be altered since the activities that would be conducted under this alternative are already being conducted.

Socioeconomics Impacts. Under Alternative 1, there would be no changes to area economics or demographics on a short-term basis. There would be a potential for decline in employment levels and the economy at a local level on a long-term basis.

Environmental Justice Impacts. Under Alternative 1, no changes or disproportionate effects to environmental justice populations would occur since the activities that would be conducted under this alternative are already being conducted.

Transportation Impacts. Under Alternative 1, traffic levels would not be affected since the activities that would be conducted under this alternative are already being conducted.

Land Use and Visual Resources Impacts. Under Alternative 1, there would be no changes in land use or effects to visual resources.

Infrastructure Impacts. Under Alternative 1, there would be no changes to infrastructure as a result of FRP activities. Some upgrades to existing systems are planned over the next ten years as a part of the ongoing activities under Alternative 1.

Human Health Impacts. Under Alternative 1, there would be no changes as a result of FRP activities. Risks to workers could potentially increase through time as more administrative and engineered controls would be required to ensure worker safety. No effects to the off-site public would be anticipated.

Waste Management and Pollution Prevention Impacts. Under Alternative 1, no changes in R&D mission activities that generate waste or waste management facilities would be anticipated. However, some increases in waste generation could occur through time as a result of increasing infrastructure inefficiencies and maintenance requirements. No waste would be generated as a result of FRP activities.

ALTERNATIVE 2 - REMODEL

Earth Resources Impacts. Under Alternative 2, remodeling and demolition could temporarily disturb up to 0.2 ha (0.5 acres) resulting in potential soil erosion or disturbance of underlying materials during that time. This would be mitigated by soil wetting and other best management practices (BMP). There would be no long-term or overall increase in soil erosion or impact to geology.

Water Resources Impacts. Under Alternative 2, remodeling and deactivation activities could cause temporary, localized interruption of active sumps or new discharges to nearby surface water. However, no changes in underlying water usage would occur, and no new long-term withdrawal or discharge to surface water would be anticipated. Construction or other activities that could potentially affect groundwater use or quality over the long-term would not take place.

Ecological Impacts. Under Alternative 2, no effects to threatened and endangered species would be anticipated during limited remodeling and demolition activities. Surveys for bats would be conducted in buildings if they were to be demolished between April 1 and October 15. No activities would take place in wetlands or floodplain. Therefore, no FRP effects to ecology, including wetlands and protected species would occur.

Cultural Impacts. Under Alternative 2, no adverse effects to cultural resources would result from limited remodeling and deactivation activities. Demolition of buildings would result in adverse effects to cultural resources. These would be mitigated per consultations with the State Historic Preservation Office (SHPO). Temporary visual effects would occur within the ORNL Historic District, but these would be similar to the effects of other projects being conducted in the area.

Air Quality Impacts. Under Alternative 2, negligible temporary emissions from heavy equipment and dust as a result of remodeling activities and demolishing up to four buildings would occur. Long-term, air quality would not change appreciably as a result of FRP activities since the activities that would be conducted under this alternative are already being conducted, although minor emission reductions could be realized in remodeled buildings.

Noise Impacts. Under Alternative 2, temporary increases in noise levels would occur during remodeling and demolition activities. Noise level increases would be limited to the central ORNL industrial area and no changes in off-site noise levels would occur.

Socioeconomics Impacts. Under Alternative 2, there would be no appreciable changes to area economics or demographics.

Environmental Justice Impacts. Under Alternative 2, no disproportionate effects to environmental justice populations would occur since no appreciable health risks to the public are posed by this alternative. And there are no special circumstances that would result in disproportionately high or adverse impacts to minority or low-income populations in any exposure pathway.

Transportation Impacts. Under Alternative 2, no appreciable changes in traffic levels would occur on a temporary basis. There would be no change in daily number of vehicular traffic on a long-term basis.

Land Use and Visual Resources Impacts. Under Alternative 2, there would be no change in land use or land use designation. Approximately 2 ha (5 acres) would be temporarily used as laydown areas during remodeling and demolition. Approximately 0.2 ha (0.5 acre) would be cleared as a result of demolishing four buildings. Land would remain DOE-owned. Visual resources would not be affected because activities would occur in already developed areas where similar activities would occur concurrently.

Infrastructure Impacts. Under Alternative 2, there would be minor improvements to utilities within remodeled buildings would occur, and utilities would be shut down or disconnected in deactivated buildings.

Human Health Impacts. Under Alternative 2, there would be temporary risks of accidents from the operation of heavy equipment and the management of construction debris and potentially hazardous wastes. This would be mitigated through strict adherence to work safe practices. Approximately 320 workers would benefit from safety improvements within remodeled buildings and removal of four older buildings would also improve general safety. No effects to the off-site public would be anticipated.

Waste Management and Pollution Prevention Impacts. Under Alternative 2, there would be no change in waste generated by R&D missions or waste management facilities. Approximately 9,220 m³ (12,062 yd³) of waste would be generated as a result of limited remodeling, deactivation and demolition activities.

ALTERNATIVE 3 - BROWNFIELD

Earth Resources Impacts. Under Alternative 3, construction and other activities could temporarily disturb up to 12 ha (30 acres) resulting in potential soil erosion or disturbance of underlying materials to a maximum depth of 1.2 m (4 ft). Potential erosion would be avoided or mitigated by soil wetting and other best management practices (BMP). There would be no long-term or overall increase in soil erosion or impact to geology.

Water Resources Impacts. Under Alternative 3, remodeling and deactivation activities could cause temporary, localized interruption of active sumps or new discharges to nearby surface water. However, no changes in underlying water usage would occur, and no new long-term withdrawal or discharge to surface water would be anticipated. Construction activities could potentially lead to sediment loading in surface water. Erosion control measures would be taken to avoid or mitigate this potential effect.

Ecological Impacts. Under Alternative 3, minimal effects to local ecology would occur. Construction of new facilities would increase noise and dust levels during construction. This could affect local animal populations, particularly during breeding seasons. Mitigation would be required to minimize erosion and sedimentation of surface water during construction as described above. Overall, these effects would be temporary and localized.

No effects to threatened and endangered species would be anticipated during construction and other activities. Surveys for bats would be conducted in buildings if they were to be demolished between April 1 and October 15. Indirect effects to small wetlands could occur, but would be mitigated through appropriate protective measures. No changes would occur to a floodplain.

No long-term FRP effects to ecological resources would occur, with the exception of the loss or alteration of up to 0.4 ha (1 acre) of habitat in Melton Valley.

Cultural Impacts. Under Alternative 3, no adverse effects to cultural resources would result from remodeling and deactivation activities. Demolition of buildings would result in adverse effects to cultural

resources. These would be mitigated per consultations with the State Historic SHPO. Temporary visual effects would occur within the ORNL Historic District, but they would be similar to the effects of other projects being conducted in the area.

Air Quality Impacts. Under Alternative 3, temporary emissions from heavy equipment and dust as a result of construction, remodeling and demolition of up to six buildings would occur. No changes would occur in routine air emissions, although minor improvements could result from the installation of more efficient systems in buildings.

Noise Impacts. Under Alternative 3, temporary increases in noise levels would occur during construction and other activities. Noise level increases would be limited to the central ORNL industrial area and the HFIR and 7900 Block areas of Melton Valley. No long-term changes in off-site noise levels would occur.

Socioeconomics Impacts. Under Alternative 3, temporary increases in employment levels for construction workers would be negligible on a regional basis. There would be no changes in housing or infrastructure demands. There would be no changes to economics or demographics on a regional basis. There would be potential benefits through retention of employment and income in the area on a localized, long-term basis.

Environmental Justice Impacts. Under Alternative 3, no disproportionate effects to environmental justice populations would occur since no appreciable health risks to the public are posed by this alternative. And there are no special circumstances that would result in disproportionately high or adverse impacts to minority or low-income populations in any exposure pathway.

Transportation Impacts. Under Alternative 3, temporary increases in traffic levels would occur on Bethel Valley Road due to construction traffic. These increases and potential minor increases due to relocated employees traveling on Bethel Valley and other nearby roads would be offset by recent declines in daily traffic by long-term employees on the Oak Ridge Reservation (ORR).

Land Use and Visual Resources Impacts. Under Alternative 3, there would be no net change in land use or land use designation. Approximately 12 ha (30 acres) would be temporarily disturbed during FRP activities, including 0.4 ha (1 acre) in Melton Valley that would remain disturbed. Approximately 0.8 ha (2 acre) in Bethel Valley would be cleared as a result of demolishing six buildings. Up to 20 ha (50 acres) total in Bethel Valley and on Chestnut Ridge would be transferred from DOE ownership to the State or private sector. Land would remain DOE-controlled. Visual resources would not be affected because activities would occur in already developed areas where similar activities would occur concurrently.

Infrastructure Impacts. Under Alternative 3, there would be improvements to utilities within remodeled buildings, and utilities would be shut down or disconnected in deactivated buildings. Changes to electrical distribution and other infrastructure systems would occur at the east and west “campus” ends of ORNL that would result in improvements to utility efficiency, traffic flow, and parking availability.

Human Health Impacts. Under Alternative 3, there would be temporary risks of accidents from the operation of heavy equipment and the management of construction debris and potentially hazardous wastes. This would be mitigated through strict adherence to work safe practices. There would be appreciable enhancements in working conditions and approximately 1,100 workers would benefit from safety improvements within remodeled buildings. The deactivation of numerous building and removal of six older buildings would improve general safety. No effects to the off-site public would be anticipated.

Waste Management and Pollution Prevention Impacts. Under Alternative 3, there would be no change in waste generated by R&D missions or waste management facilities. Some reductions in waste generated by building maintenance could be realized. Approximately 21,462 m³ (28,072 yd³) of waste would be generated as a result of FRP construction, remodeling, deactivation and demolition activities. In addition, approximately 21,538 m³ (28,172 yd³) of debris and soil would be generated during site preparation.

ALTERNATIVE 4 - GREENFIELD

Earth Resources Impacts. Under Alternative 4, construction and other activities could temporarily disturb up to 18 ha (45 acres) resulting in potential soil erosion or disturbance of underlying materials to a maximum depth of 3.6 m (12 ft). Potential erosion would be mitigated by the use of soil wetting, temporary shoring or rip-rapping if necessary, and other best management practices (BMP). There would be no long-term or overall increase in soil erosion or impact to geology.

Water Resources Impacts. Under Alternative 4, remodeling and deactivation activities could cause temporary, localized interruption of active sumps or new discharges to nearby surface water. However, no changes in underlying water usage would occur, and no new long-term withdrawal or discharge to surface water would be anticipated. However, construction activities could lead to sediment loading in surface water. Extensive erosion control measures would be taken to mitigate this potential effect. Continued sedimentation controls (e.g., vegetative cover) would be maintained on greenfield site slopes.

Ecological Impacts. Under Alternative 4, some effects to local ecology could occur. Construction of new facilities would increase noise and dust levels during construction. This could affect local animal populations, particularly during breeding seasons. Mitigation would be required to minimize erosion and sedimentation of surface water during construction as described above. Up to 18 ha (45 acres) of previously undisturbed habitat would be disturbed during construction activities.

No effects to threatened and endangered species would be anticipated during construction and other activities. Surveys for bats would be conducted in buildings if they were to be demolished between April 1 and October 15. Although no wetlands are present within the Greenfield Site, indirect effects to any small wetlands along the stream down gradient to the site would be possible. Any potential effects would be mitigated through appropriate protective measures. No changes would occur to a floodplain.

Long-term FRP effects to ecological resources would include loss or alteration of up to 16 ha (40 acres) of upland and bottomland hardwood habitat in addition to 0.4 ha (1 acre) in Melton Valley.

Cultural Impacts. Under Alternative 4, no adverse effects to cultural resources would result from limited remodeling and deactivation activities. Demolition of buildings would result in adverse effects to cultural resources. These would be mitigated per consultations with the SHPO. Temporary visual effects would occur within the ORNL Historic District, but these would be similar to the effects of other projects being conducted in the area. No cultural resources were identified at the Greenfield Site.

Air Quality Impacts. Under Alternative 4, temporary emissions from heavy equipment and dust as a result of construction, remodeling and demolition of up to six buildings would occur. Extensive dust control measures would be required during preparation of the Greenfield Site. No changes would occur in routine air emissions, although minor improvements could result from the installation of more efficient systems in buildings.

Noise Impacts. Under Alternative 4, temporary increases in noise levels would occur during

construction and other activities. Noise level increases would be limited to the central ORNL industrial area and the HFIR and 7900 Block areas of Melton Valley. No long-term changes in off-site noise levels would occur with the exception of localized increases at the Greenfield Site.

Socioeconomics Impacts. Under Alternative 4, temporary increases in employment levels for construction workers would be negligible on a regional basis. There would be no changes in housing or infrastructure demands. There would be no changes to economics or demographics on a regional basis. There would be potential benefits through retention of employment and income in the area on a localized, long-term basis.

Environmental Justice Impacts. Under Alternative 4, no disproportionate effects to environmental justice populations would occur since no appreciable health risks to the public are posed by this alternative. And there are no special circumstances that would result in disproportionately high or adverse impacts to minority or low-income populations in any exposure pathway.

Transportation Impacts. Under Alternative 4, temporary increases in traffic levels would occur on Bethel Valley Road due to construction traffic. These increases and potential minor increases due to relocated employees traveling on Bethel Valley and other nearby roads would be offset by recent declines in daily traffic by long-term employees on the ORR.

Land Use and Visual Resources Impacts. Under Alternative 4, there would be a net change in land use and land use designation of up to 16 ha (40 acres) that would change from Mixed Research/Future Initiatives to Industrial/Research land use designations. Approximately 18 ha (45 acres) would be temporarily disturbed during FRP activities, including 0.4 ha (1 acre) in Melton Valley. Approximately 16 ha (40 acre) of Greenfield in Bethel Valley would be cleared for new construction. Up to 20 ha (50 acres) total in Bethel Valley would be transferred from DOE ownership to the State or private sector. Land would remain DOE-controlled. Development of the Greenfield Site would be consistent with visual resource classification of the ORNL Plant, but would downgrade the site from ARM Class III to ARM Class IV.

Infrastructure Impacts. Under Alternative 4, there would be improvements to utilities within remodeled buildings, and utilities would be shut down or disconnected in deactivated buildings. Changes to electrical distribution and other infrastructure systems would occur at the east and west “campus” ends of ORNL that would result in improvements to utility efficiency, traffic flow, and parking availability. Additional lines, piping and modulating systems, access roads, and parking areas would be required to connect the Greenfield Site to ORNL.

Human Health Impacts. Under Alternative 4, there would be temporary risks of accidents from the operation of heavy equipment, particularly during site preparation, and from the management of construction debris and potentially hazardous wastes. This would be mitigated through strict adherence to work safe practices. There would be appreciable enhancements in working conditions and approximately 1,100 workers would benefit from safety improvements within remodeled buildings. The deactivation of numerous buildings and removal of six older buildings would improve general safety. No effects to the off-site public would be anticipated.

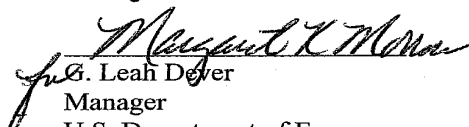
Waste Management and Pollution Prevention Impacts. Under Alternative 4, there would be no change in waste generated by R&D missions or waste management facilities. Some reductions in waste generated by building maintenance could be realized. Approximately 21,462 m³ (28,072 yd³) of waste would be generated as a result of FRP construction, remodeling, deactivation and demolition activities. In addition, approximately 328,888 m³ (430,185 yd³) of debris and cut soil would be generated during site preparation.

Cumulative Impacts of the Preferred Alternative. Potential effects that could result from the Proposed Action, Alternative 3 - Brownfield, were evaluated with respect to other projects likely to have similar effects within the same time frame. These projects included environmental restoration (ER) actions and construction and operation of the SNS facility in Bethel Valley; ER actions and operation and decommissioning of a treatment facility for mixed transuranic radioactive waste in Melton Valley; and a variety of ER projects at Y-12, including an Environmental Management and Waste Management Facility and the modernization of Y-12. Other local projects that could have cumulative impacts with the FRP include a proposed connector highway from I-40 in Roan County to Oak Ridge.

Little to no cumulative impacts in the following areas would result from the proposed action: geology and soils, groundwater and surface water, ecological resources, air quality, environmental justice, land use and visual resources, human health, and waste management. Incremental increases in utility usage were noted, particularly electrical because the SNS facility will have high demands for this. But, available capacities should be able to meet these demands. There would be no immediate change in employment levels, income, housing or community service demands as a result of the collective projects on a regional basis. Sustaining the number of well-paying jobs in the OR region over the long-term would have cumulative positive effects. Short-term increases in noise and dust levels could be appreciable on a localized basis in the unlikely event that heavy equipment were in operation concurrently for numerous projects. Traffic demands fluctuate and it is not known if there would be any change for roadway access on a cumulative basis. Cumulative impacts to historic properties could result from other actions taken in combination with the proposed action, and careful coordination and consultations with the SHPO would be required to ensure that appropriate mitigation is completed.

DETERMINATION: Based on the findings of this EA, DOE has determined that the proposed revitalization of facilities at the Oak Ridge National Laboratory in Oak Ridge, Tennessee does not constitute a major federal action that would significantly affect the quality of the human environment within the context of the National Environmental Policy Act. Therefore, preparation of an environmental impact statement is not required.

Issued at Oak Ridge, Tennessee, this 01 day of June 2001.


for G. Leah Dever
Manager
U.S. Department of Energy
Oak Ridge Operations
Oak Ridge, Tennessee