



Department of Energy
Richland Operations Office
P.O. Box 550
Richland, Washington 99352

DOE/EA-1934

FINDING OF NO SIGNIFICANT IMPACT

EXPANSION OF BORROW AREAS ON THE HANFORD SITE, RICHLAND, WASHINGTON

AGENCY: U.S. Department of Energy, Richland Operations Office

ACTION: Finding of No Significant Impact

SUMMARY: The U.S. Department of Energy (DOE) has completed a National Environmental Policy Act (NEPA) *Environmental Assessment for Expansion of Borrow Areas on the Hanford Site* (EA) (DOE/EA-1934) that analyzed the potential environmental impacts of the Proposed Action to expand 11 existing sand and gravel borrow sites and develop one new sand and gravel borrow site on the Hanford Site in Richland, Washington.

In addition to the Proposed Action, a No-Action Alternative was considered as required by DOE regulations for implementing the NEPA. Based on the information presented in the Final EA (DOE/EA-1934) and the commitment in the Mitigation Action Plan (MAP) to mitigate impacts to less-than-significant levels, DOE has determined that the proposed action to expand eleven active borrow areas on the Hanford Site will not constitute a major Federal action significantly affecting the quality of the human environment within the context of NEPA. Therefore, the preparation of an environmental impact statement is not required, and DOE is issuing this Finding of No Significant Impact (FONSI). During the National Historic Preservation Act (NHPA) Section 106 review – which was coordinated with the NEPA review – and the EA comment period, concerns were raised regarding the proposed new borrow site (Pit 36) due to potential impacts to the Traditional Cultural Property (TCP) known as the *Mooli Mooli*. Because of these concerns and to allow for their resolution through continued consultation, DOE has decided to defer a determination on the proposed Pit 36 at this time.

Correspondence received during the draft EA comment period and general responses are included as Appendix C of the Final EA.

PROPOSED ACTION: With the intent of identifying foreseeable needs for backfill of remediated waste sites, as well as for construction and maintenance activities across the Hanford Site, DOE has identified the need for approximately 10,714,000 bank cubic meters of sand and gravel materials. Eleven existing sand and gravel borrow areas were proposed for expansion or continued use in the EA to meet this need, including Pits F, H, N, 6, 9, 18, 21, 23, 24, 30, and 34 (Figure 1).

Figure 1. Location of Proposed Action Borrow Sites.



In addition, one new borrow area was proposed for the area between the 100-K and 100-N Reactor Areas (Pit 36). Due to concerns regarding potential adverse effects to views from the *Mooli Mooli*, DOE has decided to defer a determination on the proposed Pit 36 at this time. A decision on Pit 36 may be made in the future after further Tribal consultation.

The Proposed Action was identified with the goal of meeting DOE’s need for sand and gravel

materials while minimizing distances between borrow sources and remediation sites. This approach will reduce the potential for highway safety incidents, minimize greenhouse gas and other emissions, minimize impacts to natural and cultural resources, and reduce overall costs associated with excavating and transporting materials. Stockpiled and projected volumes of clean construction and demolition waste (e.g., concrete basin rubble) were used to mitigate required amounts of new sand and gravel materials in the EA.

The Proposed Action involves the removal of topsoil and vegetation at each of the proposed expansion areas and the one new borrow area in preparation for excavation and transport of aggregate material. To minimize unnecessary topsoil and vegetation disturbance, whenever feasible, expansion of the pits would occur from previously excavated areas outward, rather than inward from the new boundary. Borrow material would be excavated on an as-needed basis to ensure only the area needed for material is disturbed. Prior to any material being excavated for use as backfill, the top 30 cm (12 in.) of topsoil would be stockpiled for redistribution across the disturbed area to facilitate successful revegetation after the borrow area would be closed.

As borrow materials are exhausted within a particular pit, slopes would be recontoured in a manner that would support establishment of native plant communities and promote the aesthetic integrity of the landscape. Closure of pits would include revegetation in accordance with applicable Hanford Site management plans.

To protect against impacts on underlying groundwater, excavations in the borrow pit locations would be limited to leave at least 2 m (6.6 ft) in depth from the bottom of the pit to the typical groundwater elevation. In the unlikely event that groundwater is encountered in the bottom of a borrow pit, administrative controls will be used, such as markers or temporary fencing, to prevent contact between groundwater and equipment. If groundwater was to remain for a sustained period, material would be placed in those areas to ensure they will not remain wetted. To further protect against adverse impacts to groundwater, water used for dust suppression for borrow pit activities will be obtained from the existing Hanford Site water system that supplies raw water and drinking water. This water is authorized for discharge to the ground in existing State Waste Discharge Permits issued by the Washington State Department of Ecology pursuant to *Washington Administrative Code* 173-216, "State Waste Discharge Permit Program." Spill prevention and response measures are implemented to minimize the potential for impacts from spills of hazardous materials from vehicles and borrow pit equipment.

At Pit 30, an additional amount of water may be necessary to process the borrow material to obtain the appropriate sized material to meet construction needs at the Environmental Restoration Disposal Facility and Waste Treatment Plant. However, water discharges at Pit 30 are not anticipated to impact the groundwater or Columbia River due to the depth to groundwater (at least 100 m [330 ft]) and the distance to the river (several miles). Requirements from the statewide *Sand and Gravel General Permit* (Ecology 2011) would also be implemented at Pit 30 including effluent monitoring, best management practices, spill controls, frequent inspections, and waste disposal requirements.

The Proposed Action also includes ensuring adequate access roads for the expanded borrow locations. Existing haul roads could require upgrades and new roads would be constructed for the transportation of borrow material at Pit 6. Appropriate utilities would be provided and could include portable generators or extension of power lines for lighting, installation of office trailers for personnel, and portable toilets. Conventional industrial equipment would be used to excavate the borrow material. Equipment used to transport borrow material could include both conventional and nonconventional trucks.

Ecological and cultural resources reviews have been performed for the Proposed Action borrow areas. Where ecological reviews indicated the possibility of the presence of sensitive plant or animal species, further evaluation would be conducted prior to the start of project activities and appropriate mitigation measures would be implemented as provided in the *Hanford Site Biological Resources Management Plan* (DOE/RL-96-32). In addition, project activities are carried out in accordance with the *Hanford Site Cultural Resources Management Plan* (DOE/RL-98-10). Workers must watch for cultural materials during all work activities. If cultural materials are encountered during project activities, work in the vicinity of the discovery would stop until appropriate notifications and assessments are made and, if necessary, arrangements are made for mitigation of the discovery.

Topsoil from the expansion areas of the borrow sites and surface materials from construction of roads would be stockpiled for future use in revegetation when closing the sites. Topsoil would be stockpiled for future use in approved areas, which may be inside, outside, or adjacent to the pit boundary. Mitigation actions pertaining to establishment and closure of the borrow pits, such as revegetation of borrow sites and haul roads, would be consistent with applicable Hanford Site management plans.

While final remedial action decisions have yet to be made for some cleanup work, the proposed action would support the projected needs for sand and gravel for a period of approximately 10 years. If additional materials are needed as a result of future final remediation decisions, they may be addressed as new NEPA or NEPA-integrated documentation.

ALTERNATIVES: In addition to the proposed action, the EA evaluated one alternative; the No-Action Alternative. Under the No-Action Alternative, excavation of borrow materials would continue only in borrow areas that have not already reached their allowed maximum surface area disturbance, identified in DOE/EA-1403, *Environmental Assessment for Use of Existing Borrow Areas, Hanford Site, Richland, Washington*, and DOE/EA-1454, *Environmental Assessment for Reactivation and Use of Three Former Borrow Sites in the 100-F, 100-H, and 100-N Areas*. As such, borrow pits N, H, 9, 23, 30, and 34 would be used to supply backfill materials for the River Corridor and Central Plateau activities. Under the No-Action Alternative, approximately 3,526,928 additional haul kilometers (2,192,000 additional haul miles) would occur as compared to the proposed action to transport borrow materials from existing approved borrow areas.

Significance of Potential Impacts of the Proposed Action: The EA considered potential impacts of expanding borrow areas on health and safety, air quality, climate change from greenhouse gas emissions, water quality, land use, ecological resources, cultural resources, visual resources, transportation, accidents, socioeconomics and environmental justice, and noise impacts. Cumulative impacts from past, present, and reasonably foreseeable future actions were also considered. Mitigation actions to minimize potential impacts to ecological, cultural, and visual resources have either been incorporated into the proposed action or are addressed in the MAP. With the use of these mitigation actions, significant impacts from the proposed action are not anticipated.

Health and Safety: Health and safety impacts will not be significant because borrow pit material will consist of uncontaminated material and recognized worker protection measures will be utilized. No radiological or toxicological exposure to personnel or the general public would be expected to occur as a result of routine excavation operations, either loading or offloading activities, since borrow materials would be obtained from uncontaminated areas. The materials would be handled in a manner consistent with commercial industrial quarry activities along with dust suppression practices widely used at the Hanford Site. The use of appropriate personal protective clothing, specific training, and equipment safeguards would be adequate mitigations to

ensure the safe recovery, handling, and transport of the borrow material.

Air Quality and Greenhouse Gas Emissions: Since the proposed expansion of borrow pits would result in continuation of an existing ongoing practice of removal and use of local borrow pit material, no substantial increase in overall air emissions would be envisioned to result from the Proposed Action Alternative; therefore, no significant impacts are identified for air quality. Air quality impacts would be due principally to exhaust emissions and fugitive dust (particulate matter) that would be generated during excavation, loading, and transportation of borrow pit materials. Fugitive dust would be mitigated primarily by the use of water sprays.

Air quality impacts from implementing the Proposed Action would also include exhaust emissions from earth-moving equipment and vehicles (primarily haul trucks) and minor emissions from vehicle wear (e.g., brake wear). The primary air emission from earth-moving equipment and vehicles is carbon dioxide, which is considered a greenhouse gas. In addition to greenhouse gases, criteria and toxic air pollutants are emitted. Criteria pollutants include volatile organic compounds, carbon monoxide, oxides of nitrogen, oxides of sulfur, and particulates. The primary toxic air pollutants include benzene, formaldehyde, acetaldehyde, and 1,3 butadiene. The air quality impacts would be reduced under the Proposed Action Alternative because the distance travelled for borrow material would be less than the No-Action Alternative, resulting in approximately 54 % less fuel consumed. Based on fuel consumption, the emissions from the proposed alternative are estimated to be low compared to the emissions from all mobile sources on the Hanford Site. For example the estimated maximum annual diesel fuel usage for the proposed action is 481,320 L (127,165 gal), which represents approximately 5% of the total diesel fuel used annually in mobile sources on the Hanford Site. The use of ultra-low sulfur fuel would also mitigate air impacts.

Water Quality: Impacts on water quality will not be significant because the water used for dust suppression will be obtained from the existing Hanford Site raw water and drinking water supply, which is already authorized for discharge to ground under existing Hanford Site permits and because the amount of dust suppression water used will be visually monitored to minimize ponding, thereby reducing infiltration into groundwater. Additional mitigation measures, such as preventing equipment from contacting groundwater by limiting excavation depth, controlling access in the unlikely event that groundwater is encountered, and spill response preparedness, will be implemented to minimize the potential for contaminants to enter groundwater and migrate to surface water as identified in the MAP.

Land Use: Impacts on land use will not be significant because the land use under the proposed alternative is consistent with the previously established land use for the Hanford Site. The borrow pits proposed for expansion under the Proposed Action would be located within "Industrial," "Conservation," "Low-intensity Recreation," or "Preservation" areas designated in the *Final Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP-EIS)* (DOE/EIS-0222). The use of borrow pits as described in the Proposed Action is consistent with allowed land uses in the HCP EIS. The total area proposed for expansion is relatively small (approximately 76 ha [187 ac]) compared to the total area potentially available for use of borrow areas (approximately 69,471 ha [171,534 ac]) under the HCP-EIS. Consistent with DOE's authority to manage covered lands as necessary to carry out the environmental cleanup mission, use of the proposed borrow sites located within the Hanford Reach National Monument would be allowable under the June 9, 2000, Presidential Proclamation for the Hanford Reach National Monument (65 FR 37253).

Ecological Resources: Impacts on ecological resources will not be significant due to the selected location of the borrow pit expansion areas or, in cases where the potential for adverse

impacts has been identified, mitigation actions will be performed. As discussed in the EA, no significant impacts to plant or animal species are anticipated after mitigation under the Proposed Action for Pits F, N, 6, 9, 18, 23, 24, and 34. Mitigation for impacts to ecological resources would be expected at Pits H, 21, and 30. Such measures include compensatory sagebrush mitigation at Pits 21 and 30, and a spring/summer evaluation for the presence of Piper's daisy at Pits H and 30, with additional mitigation performed if necessary. Mitigation measures would be conducted, as necessary, in accordance with applicable Hanford Site management plans and the MAP.

Cultural Resources: Impacts to cultural resources will not be significant because either no cultural resources or properties were identified in the expansion areas (Pits F, H, 6, 9, 18, 30, and 34) or potential impacts have been mitigated (Pits N, 21, 23, 24 and 36) as follows:

Pit N: No cultural resources or properties were identified during the Cultural Resources Review for the expansion area. Between issuance of the draft EA for public comment and the development of the Final EA, a new boundary for the Traditional Cultural Property (TCP) known as the *Mooli Mooli* was submitted to DOE. The new boundary encompasses the 100-N borrow pit proposed action location. To mitigate potential visual resource impacts to views of the expansion area from the *Mooli Mooli* TCP, berms will be placed around the outer edges of the expansion area. In addition, the borrow area will be recontoured and revegetated upon closure.

Pits 21 and 23: To mitigate potential visual resource impacts to views of the expansion areas from the *Mooli Mooli* and Gable Mountain TCPs respectively, these borrow pits will be shaped to blend with natural land contours as much as possible during development and use, and will be bermed around the outside edges. In addition, the borrow areas will be recontoured and revegetated upon closure.

Pit 24: During a previous Cultural Review for expansion of Pit 24, a pre-Hanford farmstead was identified in this area and a Memorandum of Agreement for mitigation was signed (Memorandum of Agreement for Mitigation of the Fry and Conforth Farm, HT-95-050, Griffith, 1998). All mitigation has been completed for impacts to the farmstead from previous expansion of Pit 24. No new cultural resources or properties were identified during the Cultural Resources Review for the expansion area, with the following stipulations:

- A temporary boundary marker will be established to protect the remaining portions of the farmstead
- Intermittent cultural resources monitoring will be conducted and will focus on the near-surface excavations

Pit 36: A determination on the proposed Pit 36 is deferred to allow for continued consultation.

In addition to the above mitigation items workers must watch for cultural materials during all work activities. If cultural materials are encountered during project activities, work in the vicinity of the discovery would stop until appropriate notifications and assessments are made and, if necessary, arrangements are made for mitigation of the discovery.

As a result of these stipulations and mitigation measures, it is expected there will be minimal impacts to cultural resources.

Visual Resources: Impacts to visual resources will not be significant for operation of borrow locations F, H, 6, 9, 18, 24, 30, and 34 because the expansion areas are not visible from key

observation points such as the Columbia River or TCPs. Mitigation of visual impacts identified will be undertaken for the N, 21, and 23 borrow areas. These pits will be shaped to blend with natural land contours as during development and use. Additionally, in order to mitigate impacts to views from the *Mooli Mooli* and Gable Mountain TCPs, these borrow pits will be bermed around the outside edges, and the borrow areas will be recontoured and revegetated upon closure.

Transportation: Impacts on transportation will not be significant under the proposed action because there would be negligible change to current transportation patterns on the Hanford Site. In addition, the approach for borrow pit expansion under the Proposed Action results in shorter travel distances between borrow sources and remediation sites than those under the No-Action Alternative.

Potential impacts to incident-free, intra-site truck transport of borrow materials have been considered. Occasional interference with the local traffic flow would be mitigated by appropriate administrative controls (e.g., warning signs and traffic markers). The exclusive haul roads used for the Proposed Action would continue to minimize interference with normal traffic flows because they would not use or intersect any primary Hanford Site routes.

The shorter driving distances afforded under the Proposed Action would minimize toxic emissions, greenhouse gases, and particulate from transport of borrow material. Because the Proposed Action would allow continuation of the current practice of borrow material transport, vehicle and fugitive dust emissions resulting from the Proposed Action would not be anticipated to substantially impact the existing air quality on the Hanford Site.

Pollution prevention policies and procedures are in place at the Hanford Site. Administrative controls such as vehicle maintenance and the use of ultra-low sulfur fuels would also minimize potential impacts. In addition, dust-control measures such as water sprays on the unpaved portion of the haul roads would be used to minimize airborne particulate emissions during transportation of borrow materials.

Reasonably Foreseeable Accidents Considered and Potential Effects: Impacts on reasonably foreseeable accidents will not be significant under the proposed action because the borrow pit locations will be located close to the project areas (e.g., reduced risk due to shorter travel distances). Additionally, exclusive haul roads and appropriate traffic control measures will be used where practical to minimize interference with traffic flow.

The reasonably foreseeable accidents under the Proposed Action for excavation and use of borrow areas and construction of haul roads within the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* remedial action areas would be typical construction and transportation accidents. Public health and safety would not be additionally affected under the Proposed Action. This is because the Proposed Action is a continuation of current activities and the majority of the area affected by the Proposed Action is closed to the general public. Typical construction hazards would exist; however, the risk of severe accidents would be low because haul roads would be restricted to operational use only and other administrative controls will be in place for transportation routes shared with Hanford workforce vehicles. The risk of accidents would be reduced under the Proposed Action by making borrow source material available as close to project areas as possible.

Socioeconomics and Environmental Justice: Impacts on socioeconomic and environmental justice factors will not be significant because the Proposed Action is expected to be accomplished using a workforce similar to that currently in place and impacts to known sensitive cultural resources will be mitigated.

It was estimated that about 250,000 labor hours would be required to complete the Proposed Action. Since the proposed action is a continuation of project activities underway, the work is expected to be accomplished using a workforce similar to what is currently in place. Expansion and use of the borrow pits in the Proposed Action would be performed by a combination of onsite labor and offsite vendors. The existing borrow areas occupy a total of approximately 209 ha (517 ac) within the Hanford Site, and the proposed action would increase that total to 285 ha (704 ac). While several Native American Tribes have cultural and religious ties to the Hanford Site, the proposed action would avoid and mitigate potential impacts to cultural resources. Consequently, it is not expected that the Proposed Action would have the potential to cause disproportionately high and adverse impacts on minority, low income, or Native American Tribal populations in the vicinity of the Hanford Site.

Noise Impacts: Noise impacts associated with the Proposed Action will not be significant because the action is similar to ongoing activities at currently approved borrow pits, and the cumulative haul distance from the borrow pits is significantly less than that associated with the No-Action Alternative.

Because borrow pits are not accessed by the general public, the operation would occur outside the applicable “region of influence” for members of the public. Operation of excavation equipment and passing haul-trucks would result in ambient noise in the vicinity of the borrow pits. Potential noise impacts to workers would be minimized through the use of hearing protection programs aligned with the Occupational Safety and Health Standards (29 *Code of Federal Regulations* [CFR] 1926.52, “Occupational Noise Exposure for the Construction Industry”).

Conclusion of Cumulative Impacts and Environmental Consequences Discussion:

Evaluations were performed in order to give consideration to potential cumulative impacts that could result from the Proposed Action. Many potential effects from the Proposed Action would be temporary, such as effects to transportation, air quality, water quality, health and safety, socioeconomic and environmental justice, and noise.

Borrow pit use under the Proposed Action is consistent with allowances made by current land use decisions for the Hanford Site. Potential impacts to ecological, cultural, and visual resources would be mitigated by measures outlined in the MAP. Because mitigation actions would minimize potential impacts from the Proposed Action, and because the Proposed Action represents a continuation of the current practice of using borrow materials on the Hanford Site, significant cumulative impacts are not anticipated.

REFERENCES:

29 CFR 1926, “Safety and Health Regulation for Construction,” *Code of Federal Regulations*, as amended.

64 FR 61615, 1999, “Record of Decision: Hanford Comprehensive Land-Use Plan Environmental Impact Statement (HCP-EIS),” *Federal Register*, as amended.

65 FR 37253, 2000, “Establishment of the Hanford Reach National Monument,” *Federal Register*, as amended.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C.

9601, et seq.

DOE/EA-1403, 2001, *Environmental Assessment for Use of Existing Borrow Areas, Hanford Site, Richland, Washington*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/EA-1454, 2003, *Environmental Assessment for Reactivation and Use of Three Former Borrow Sites in the 100-F, 100-H, and 100-N Areas*, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-96-32, 2001, *Hanford Site Biological Resources Management Plan*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

DOE/RL-98-10, 2003, *Hanford Cultural Resources Management Plan*, Rev. 0, U.S. Department of Energy, Richland Operations Office, Richland, Washington.

Ecology, 2011, *The Sand and Gravel General Permit*, Washington State Department of Ecology, Olympia, Washington.

National Environmental Policy Act of 1969, 42 U.S.C. 4321, et seq.

WAC 173-216, "State Waste Discharge Permit Program," *Washington Administrative Code*, as amended.

WCH-561, 2013, *Expansion of Borrow Areas on the Hanford Site, Mitigation Action Plan for DOE/EA-1934*, Rev. 0, Washington Closure Hanford, Richland, Washington.

DETERMINATION: Based on the information presented in the Final EA (DOE/EA-1934) and the commitment in the MAP to mitigate impacts to less-than-significant levels, DOE has determined that the proposed action to expand eleven active borrow areas on the Hanford Site will not constitute a major Federal action significantly affecting the quality of the human environment within the context of NEPA. Therefore, the preparation of an environmental impact statement is not required, and DOE is issuing this FONSI. Due to concerns raised during the National Historic Preservation Act (NHPA) Section 106 review, which was coordinated with the NEPA review, a determination on the proposed Pit 36 is deferred to allow for continued consultation.

The FONSI, MAP, and the Final EA (DOE/EA-1934) are available at the DOE Public Reading Room, Consolidated Information Center at Washington State University – Tri-Cities, and at <http://www.hanford.gov/page.cfm/EnvironmentalAssessments>.

For questions about this FONSI or the other NEPA documents for this project, please contact:

Paula Call
NEPA Document Manager
U.S. Department of Energy
Richland Operations Office
P.O. Box 550, MSIN A2-15
Richland, WA 99352
paula.call@rl.doe.gov

For information about the DOE NEPA process, please contact:

Office of NEPA Policy Compliance
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, D.C. 20585
<http://energy.gov/nepa/office-nepa-policy-and-compliance>

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Matt McCormick
Manager