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River Corridor
Closure Contract

Expansion of Borrow Areas on the Hanford Site

Mitigation Action Plan for DOE/EA-1934

July 2013

For Public Release

Washington Closure Hanford

Prepared for the U.S. Department of Energy, Richland Operations Office
Office of Assistant Manager for River Corridor

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1.0 SUMMARY

This Mitigation Action Plan (MAP) is an integral part of the Finding of No Significant Impact for the Proposed Action within the *Environmental Assessment for Expansion of Borrow Areas on the Hanford Site* (EA) (DOE/EA-1934). The Proposed Action would expand 11 active borrow pits on the Hanford Site that were included in previous Environmental Assessments (DOE/EA-1403, DOE/EA-1454), and establish 1 new borrow source. 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, the U.S. Department of Energy (DOE) has identified the need for approximately 10,714,000 bank cubic meters (bcm) of sand and gravel materials. These 12 pits have been identified with the goals of minimizing haul distances from borrow sources to remediation sites, minimizing greenhouse gas and other emissions, minimizing impacts to natural and cultural resources, and minimizing costs associated with excavating and transporting materials.

The evaluations in the EA considered potential cumulative impacts that would result from the proposed action. Most aspects of potential effects from the proposed action would be temporary, such as effects to transportation, air quality, water quality, health and safety, and socioeconomic and environmental justice aspects. Land use for the purposes of obtaining borrow material under the proposed action is consistent with allowances made by current land-use decisions. Potential impacts associated with the proposed action and mitigation measures were identified in the EA. This MAP includes all the integral elements and commitments made in the EA to mitigate any potential adverse environmental impacts resulting from implementation of the Proposed Action.

The U.S. Department of Energy, Richland Operations Office (DOE-RL) and its contractors are responsible for implementation of mitigation measures identified in this plan during opening and expansion, operation, and closure of the borrow areas. These mitigation actions will be monitored and implemented through the Hanford Site Environmental Management System.

If you have any general questions about the project, contact the DOE Project Manager, Tom Post, at 509-376-3232. If you have questions about the MAP, contact the DOE *National Environmental Policy Act* (NEPA) Document Manager for DOE/EA-1934, Paula Call, at 509-376-2048. This MAP may be amended if revisions are needed due to new information.

2.0 CONSULTATION RELATED TO MITIGATION MEASURES

DOE-RL sent advance letters of notification of the intent to prepare the EA to the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, the Nez Perce Tribe, the Wanapum Tribe, U.S. Environmental Protection Agency, U.S. Fish & Wildlife Service, Washington State Department of Ecology, Washington State Department of Fish and Wildlife, Washington State Historic Preservation Office, Oregon Department of Energy, Benton County, Franklin County, City of Richland, Hanford Natural Resource Trustee Council, Hanford Advisory Board, Heart of America Northwest, and the Washington Physicians for Social Responsibility.

Consultation meetings were held with a number of organizations as requested. During the preparation of the EA, coordination took place with the U.S. Fish and Wildlife Service concerning interactions with the Hanford Reach National Monument. A 30-day public comment period on the draft EA was held from December 10, 2012, to January 14, 2013.

In accordance with Section 106 of the *National Historic Preservation Act of 1966* (NHPA), potential impacts to historic properties that would result from the borrow pit expansion were evaluated. Consultation on Historic Properties at the Borrow Areas at 100-F, 100-H, and Pits 6, 9, 21, 24, 34, and 36 was conducted with the Washington State Historic Preservation Office, the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Wanapum Tribe. The NHPA Section 106 consultation was conducted by providing the consulting parties with an Area of Potential Effect (APE) document for each borrow pit expansion for a 10-day review period. The APE document included a map of the expansion area as well as the scope of work for each borrow pit expansion. Following the APE document a cultural resources review was conducted and delivered to the consulting parties for a 30-day review. Cultural resource evaluations conducted at borrow areas at 100-F and 100-H, and Pits 6, 9, 21, 23, 24, and 34 resulted in a finding of "No Historic Properties Effected." Due to extensive previous surveys and a lack of previously identified Historic Properties within the APE locations, a finding of "No Potential to Cause Effect" was provided for the 100-N Borrow Area and Pits 18 and 30. The evaluations concluded that direct adverse impacts to Historic Properties and cultural resources are not expected for the expansion at the borrow areas at 100-F, 100-N, and 100-H, and for Pits 6, 9, 18, 23, 24, 30, and 34. However, indirect impacts to visual resources are anticipated at Pits N, 21, 23, and 36.

3.0 MITIGATION MEASURES

Mitigation measures that will be implemented to reduce potential impacts associated with the Proposed Action are summarized in Table 1. Following the table, additional details regarding mitigation for impacts to ecological, cultural, and visual resources are provided. Table 2 summarizes the areas and depths identified by pit in the EA.

Table 1. Summary of Mitigation Measures. (3 Pages)

Environmental Resource	Mitigation
Land Use	• Expansion of existing borrow areas will occur from the previously excavated areas outward rather than inward from the new boundary, whenever possible. • To ensure that borrow material is only removed from within approved areas, pit boundaries will be marked in the field. • Borrow material will only be excavated on an as-needed basis to ensure only the area needed for material is disturbed. • Recycling of clean or regulatory approved construction and demolition waste will be used to offset required new sand and gravel volumes. • Borrow pit expansion is limited to the areas listed in Table 2. • Administrative controls shall be used in the event that groundwater is encountered to ensure that equipment contact with the groundwater is minimized. If groundwater were to remain for a sustained period, material would be placed in those areas to ensure they would not remain wetted.

Table 1. Summary of Mitigation Measures. (3 Pages)

Environmental Resource	Mitigation
Ecological Resources	• Prior to any material being excavated for use as backfill, the top 30 cm (12 in.) of topsoil will be stockpiled for redistribution across the disturbed area to facilitate successful revegetation. Dust suppression methods, such as application of water spray, would be implemented to control emissions of particulate matter. • Measures will be implemented to minimize the production of weedy species within the operating pit and minimize surface disturbances outside of the operating area. • Closure of borrow pits will include revegetation in accordance with current and applicable Hanford Site management plans. • At the 100-H and Pit 30 Borrow Areas, an evaluation of the pit area will be conducted each spring/summer until closure to determine the presence of Piper's daisy (*Erigeron piperianus*). If present, any impact to the species will be mitigated on a 1:1 per plant basis. • At the Pit 21 Borrow Area, compensatory sagebrush mitigation will be required on a 3:1 basis, by area, for a 1.1- ha (2.79-ac) island existing within the expansion area. • At the Pit 30 Borrow Area, compensatory sagebrush mitigation will be required on a 3:1 basis, by area, for the disturbed area.
Cultural Resources	• At the Pit 24 Borrow Area, a temporary boundary marker will be established to protect a nearby historic farmstead property and intermittent cultural resource monitoring will be performed. • At Pits N, 21, 23, and 36, visual resource impacts identified will be mitigated by staging available top soil as a berm around the outside edges of the pits to minimize the visual impact. The 100-N Borrow Area will be bermed in the north, east, and south sides; Pit 21 will be bermed on the west side; Pit 23 will be bermed on the south side; Pit 36 will be bermed on the north side. • At Pit N, 21, 23, and 36, borrow pits will be shaped to the natural land contours during development and use. • 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 made for mitigation of the discovery.
Visual Resources	• At Pits N, 21, 23, and 36,visual resource impacts identified will be mitigated by staging available top soil as a berm around the outside edges of the pits to minimize the visual impact. The 100-N Borrow Area will be bermed in the north, east, and south sides; Pit 21 will be bermed on the west side; Pit 23 will be bermed on the South side; Pit 36 will be bermed on the north side. • After borrow material are exhausted within a particular pit, slopes will be recontoured to blend with adjacent areas and to support successful revegetation of native shrubs and grasses. • The N, 21, 23, and 36 borrow pits will be shaped to blend with natural land contours as much as possible during development and use.
Air Quality	• Use of dust suppression measures (e.g., water spraying) will be used during excavating, loading, unloading, and transporting of borrow pit materials, during transportation on unpaved haul roads and on topsoil stockpiles as needed. • Haul vehicles and excavators will use ultra-low sulfur fuels and be properly maintained to lessen potential impacts on air quality.

Table 1. Summary of Mitigation Measures. (3 Pages)

Environmental Resource	Mitigation
Water Quality	• Water will be used for dust suppression. This water will be obtained from the existing Hanford Site raw water and drinking water supply, which is already authorized for discharge to ground under permits issued by Ecology pursuant to WAC 173-216. Application of dust control water will be visually monitored to minimize ponding and thereby reduce infiltration to groundwater. • Excavation will be limited to leave at least 2 m (6.6 ft) in depth from the bottom of the pit to the typical groundwater elevation. Maximum excavation depth elevations for specific borrow areas are shown in Table 2. These depth restrictions are elevations above sea level; as such, upon occasional extreme flow seasons, there is a potential for groundwater to be encountered. These brief and infrequent periods should not sustain any vegetation. In the event that groundwater remains, actions shall be taken to place material back into the excavation. • 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). • Implement spill prevention and response program to minimize the potential for spills of hazardous materials and keep spill prevention materials on site. • At the Pit 30 Borrow Area, excavation activities will be conducted in accordance with the statewide *Sand and Gravel General Permit* (Ecology 2011) that sets discharge limits and requires monitoring, inspections, implementation of best management practices, spill control measures, and waste disposal practices.
Health and Safety	• Standard health and safety practices (e.g., use of appropriate PPE, specific training, and equipment safeguards) will be used.
Transportation	• Appropriate administrative controls such as warning signs and traffic markers will be used, as necessary, to mitigate occasional interference with the local traffic flow. • Haul roads used exclusively for project-related activities would continue to minimize interference with normal traffic flows because they would not use or intersect any primary Hanford Site routes.

Table 2. Maximum Borrow Area Expansion and Excavation Depth. (2 Pages)

Borrow Area Name	Maximum Expansion Area (acres)	Total Disturbed Area (acres)	Maximum Excavation Depth Elevation (meters above sea level) [a]
F	0[b]	39.9	116
H	10.6	34.3	117
N	12.8	53.0	121
6	28.0	97.7	108
9	11.6	70.3	110
18	0[b]	8.2	116
21	35.0	64.2	121
23	13.0	71.7	124
24	16.5	65.0	123
30	19.0	142.0	126

Table 2. Maximum Borrow Area Expansion and Excavation Depth. (2 Pages)

Borrow Area Name	Maximum Expansion Area (acres)	Total Disturbed Area (acres)	Maximum Excavation Depth Elevation (meters above sea level) [a]
34	10.9	28.0	135
36 (new borrow pit)	30.0	30.0	124

[a] Borrow pits located in the interior area of the Hanford Site, such as Pits 30 and 34, would be less likely to reach their maximum excavation depths. Other considerations such as safety, aesthetics, and closure may result in a depth shallower than the maximums listed in this table.

[b] No lateral expansion beyond currently approved boundaries; depth will increase.

3.1 MITIGATION FOR ECOLOGICAL RESOURCES

Prior to excavation activities commencing, the top 30 cm (1 ft) of topsoil, as available, will be stockpiled for topdressing material to be redistributed across the site to facilitate successful revegetation efforts. Stockpiling topsoil, as well as excavating material for backfill, will be done on an as-needed basis. Area will be consumed from the previously disturbed area outward, rather than from the expansion boundary inward. This is to avoid a noncontiguous disturbance and thus unnecessarily negatively impacting intact habitat. All borrow area boundaries will be clearly defined and staked to prevent inadvertent disturbance of areas beyond the allowable expansions as identified in DOE/EA-1934. Ecological resources will be reevaluated on an annual basis in an Ecological Resource Review by a natural resources specialist of the primary user.

A survey of the Pit H borrow area for the presence of Piper's daisy (*Erigeron piperianus*) will be conducted each spring/summer until the pit is closed. The Washington State rare plant Geographical Information System (GIS) identifies an occurrence of this species within the borrow pit. Piper's daisy is a Washington State sensitive species and a Level III resource per the *Hanford Site Biological Resources Management Plan* (BRMaP) (DOE/RL-96-32). Mitigation for impacts to this species is replacement on a 1:1 per plant basis. This requirement will be captured in an annually updated Ecological Resource Review.

At Pit 21, the expansion encompasses a noncontiguous 1.1-ha (2.79-ac) island of Level III sagebrush habitat as described in BRMaP. Compensatory mitigation will be required on a 3:1 basis by area. This mitigation action will occur in the next available revegetation window once disturbed. The expansion area is within an area of old-growth sagebrush that experienced a major die-off and then burned. An adjacent compensatory mitigation of 3:1 by area as well as rectification of the pit upon closure will provide a direct seed source that has since been lost.

Pit 30 borrow area will require sagebrush mitigation for the proposed expansion. Mitigation will be required on a 3:1 basis by area. As vegetation is disturbed, the compensatory mitigation will occur in the next available revegetation window. To continue expansion of the existing borrow pit is a better land use practice as opposed to creating a new pit and further isolating native habitat and having to create more access roads. The Washington State rare plant GIS system identified Piper's daisy within this borrow area. Mitigation for any impacts to this species is replacement on a 1:1 per plant basis. Annual surveys for this species will be conducted each spring/summer to evaluate its presence and will be captured in the annually updated ecological reviews.

Pit 24 contains a significantly wetted area, some portions being only seasonally wet. However, the ecological gains from this site outweigh the benefits of filling in the wetted portions. There are several occurrences of invasive species including salt cedar (*Tamarix* sp.) and common reed (*Phragmites australis*). It is not within the scope of DOE/EA-1934 to address any mitigation for the aforementioned invasives as they are not within the proposed expansion area.

Upon closure of all of the borrow sources, a recontouring plan will be devised taking into account slope, surrounding habitat and aesthetic, as-left condition. While it will be practical to leave some slopes at a 4:1, it is the intent to create a sinuous appearance. Rectilinear topographic elements shall be avoided. Instead of straight planar slopes and right angles, final topography should have contours, small chutes or ravines and rolling mounds, especially in the toe of the excavation. If boundaries allow, and the adjacent habitat is of poor quality, efforts shall be made to further reduce slope to even 10:1 or beyond. Recontouring plans will be developed when the extent of disturbance is known and will be conducted within areas allowed by ecological and cultural resources reviews. At a minimum, extra planning will be implemented for leeward slopes to prevent establishing catch basins for invasive species. Revegetation upon closure of a borrow pit will be conducted in accordance with all current and applicable Hanford Site Management Plans.

3.2 MITIGATION FOR CULTURAL RESOURCES

No mitigation for impacts to cultural resources is required for borrow areas Pit F, N, and H, and for Pits 6, 9, 18, 21, 23, 24, 30, and 34 as the findings of the Section 106 cultural resources reviews indicated either "No Potential to Cause Effect to Historic Properties," or "No Historic Properties Effected."

Pit 24 is located within a National Register of Historic Places (NRHP)-eligible farmstead (45BN1220). The finding of the NHPA Section 106 cultural resources review for Pit 24 was "No Adverse Effect to Historic Properties" with stipulations to avoid an adverse impact. In order to avoid impacting the remaining portions of 45BN1220, a temporary boundary marker will be used to indicate the Pit 24 boundary. Additionally, intermittent cultural resources monitoring will be conducted and will focus on the near-surface excavations.

Pit 36 is located within the viewshed of the Hanford Site Traditional Cultural Property (TCP) known as the *Mooli Mooli*. The finding of the NHPA Section 106 cultural resources review for Pit 36 was "No Adverse Effect to Historic Properties" with stipulations to avoid indirect adverse impacts to the views from the *Mooli Mooli* TCP. In order to mitigate these potential impacts, the borrow pit proposed design has a curved shape in order to better fit the natural topography of the surrounding landscape. Additionally, the proposed action identifies staging surface sediments as a berm on the northern side of the APE to minimize the impacts to views from the TCP. However, consulting parties raised concerns regarding potential impacts to the TCP, *Mooli Mooli* during the NHPA Section 106 30-day review period and during the EA comment period. Consequently, DOE continues to consult on Pit 36.

Pit 21 is visible from the TCP known as *Mooli Mooli*, as identified through the NHPA Section 106 process. Between issuance of the draft EA for public comment and the development of the final EA, a new boundary for the *Mooli Mooli* TCP was submitted to the DOE. The new boundary is in proximity to Pit 21. Adverse impacts to views from the *Mooli Mooli* TCP were identified and will be mitigated by berming the topsoil from the expansion area on the south side of the Pit 21 expansion.

3.3 MITIGATION FOR VISUAL RESOURCES

Once borrow material are exhausted within a particular pit, the slopes will be recontoured to blend with the natural surrounding landscape in a pattern that will support healthy and successful establishment of native shrubs and grasses. A recontouring plan will be developed for all borrow areas that will take into account slope, surrounding habitat, and aesthetic, as-left condition. Revegetation will be in accordance with all current and applicable Hanford Site management plans.

At Pits N, 21, 23, and 36, visual resource mitigation measures will be implemented by berming around the outside edges of the pits to minimize the impact to the views from the Hanford Site TCPs known as the *Mooli Mooli* and Gable Mountain. The 100-N Borrow Pit will be bermed on the east and south sides to minimize impacts to views from the *Mooli Mooli* TCP. Pit 21 will be bermed on the west side to minimize impacts to views from the *Mooli Mooli* TCP. The Pit 36 proposed action identifies staging topsoil as a berm on the north side to minimize impacts to views from the *Mooli Mooli* TCP. Pit 23 will be bermed on the south side to minimize impacts to views from the Gable Mountain TCP. Upon borrow area closure, the soil berms will be spread across the borrow pits to assist with successful revegetation of the borrow areas in accordance with all current and applicable Hanford Site management plans.

4.0 REFERENCES

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National Historic Preservation Act of 1966, 16 U.S.C. 470, et seq.

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

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