State of Washington
DEPARTMENT OF FISH AND WILDLIFE

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c/o Department of Ecology
1315 W 4th Ave, Kennewick, WA 99336

19 January, 1996

To: David Mudd
Habitat Program, Olympia

From: Jay McConnaughey
Habitat Biologist, Hanford Site

Subject: Mitigation documentation for the Safe Interim Storage (SIS) of Hanford Tank Wastes, Hanford Site, WA.

I am enclosing documents for the SIS action so that it may be tracked by our agency. They are: Appendix D of the EIS titled *Final Environmental Impact Statement Safe Interim Storage of Hanford Tank Wastes, Hanford Site, Richland, Washington* document DOE/EIS-0212; *Mitigation Action Plan for SIS of Hanford Tank Wastes,* document DOE/EIS-0212MAP; and the *Record of Decision; SIS of Hanford Tank Wastes, Hanford Site, Richland, Washington,* document 6450-01-P. Additional agency correspondence to U.S. Department of Energy (USDOE) and responses from USDOE related to this action reside with the Habitat Biologist position for the Hanford Site. If this position is terminated, all records will be deposited at the Regional Office in Yakima. If there is any need to reference these documents, please contact me at (509) 736-3095.

jlm

Attachments

cc: Brent Renfrow, Acting Habitat Program Manager, Region 3 with attachments

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

November 1995

Dear Citizen:

This is the Record of Decision (ROD) on the Safe Interim Storage (SIS) of Hanford Tank Wastes Final Environmental Impact Statement (FEIS). The U.S. Department of Energy (DOE), with concurrence from the Washington State Department of Ecology, has prepared this ROD in accordance with the National Environmental Policy Act (NEPA).

This ROD deals with interim action required prior to making decisions based on the Hanford Tank Waste Remediation System (TWRS) EIS. The TWRS EIS is being prepared to analyze long term tank waste management actions.

The SIS FEIS ROD documents DOE's decision to initiate construction activities for a replacement cross site transfer pipeline between the 200 East and 200 West areas of the Hanford Site. The replacement pipeline provides a safe and reliable cross-site transfer capability in support of the SIS needs of the tank farms.

The ROD, FEIS, and reference documents are available in public reading rooms and information repositories. Their addresses are included in this ROD and in the NEPA/State Environmental Policy Act fact sheet in Volume 1 of the FEIS. For further information or to request additional copies, contact:

Carolyn C. Haass
U.S. Department of Energy
Richland Operations Office
P.O. Box 550, MSIN S7-51
(509) 372-2731

DOE will continue to inform the public and interested parties on any subsequent NEPA actions related to the TWRS Program.

Sincerely,

John D. Wagoner
Manager

[6450-01-P]

DEPARTMENT OF ENERGY

Record of Decision; Safe Interim Storage of Hanford Tank Wastes, Hanford Site, Richland, Washington

AGENCY: U.S. Department of Energy (DOE)

ACTION: Notice of Record of Decision (ROD)

SUMMARY: DOE and the Washington State Department of Ecology (Ecology) have jointly prepared the *Safe Interim Storage of Hanford Tank Wastes Final Environmental Impact Statement* (SIS EIS) (DOE/EIS-0212) to assess the environmental and human health impacts associated with the construction and operation of facilities and systems to continue the safe management of high-level, mixed radioactive wastes stored in tanks at the Hanford Site. After careful consideration of environmental impacts, lifecycle costs, public, agency, and tribal comments, and engineering evaluations, DOE has decided to implement most of the actions of the preferred alternative evaluated in the Final SIS EIS and are documenting this determination in this ROD. The actions will involve the continued operation of the existing cross-site transfer system (ECSTS) until replaced by the construction and operation of a new replacement cross-site transfer system (RCSTS) consisting of buried, double-wall, insulated pipes, and continued operation of the mixer pump installed in Tank 101-SY to mitigate the unacceptable accumulation of hydrogen and other flammable gases.

Pending resolution of a recently identified safety issue, DOE is deferring a decision on the retrieval of solids from Tank 102-SY, and limiting the transfer of wastes through Tank 102-SY to non-complexed wastes. Evaluation of this issue will be addressed under DOE's NEPA procedures as necessary. DOE and Ecology have determined that new storage tanks will not be necessary at the present time to mitigate the flammable gas safety issue, based on the demonstrated success of the mixer pump.

FOR FURTHER INFORMATION CONTACT: For further information on DOE and Ecology activities related to this project or copies of the Final SIS EIS, please contact:

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P.O. Box 550, MSIN S7-51
Richland, WA 99352
(509) 372-2731

Geoff Tallent
Washington Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
(360) 407-7112

For further information on DOE's National Environmental Policy Act (NEPA) process, please contact:

Carol Borgstrom, Director
Office of NEPA Policy and Assistance (EH-42)
U.S. Department of Energy
1000 Independence Avenue, SW.
Washington, D.C. 20585-0002
(202) 586-4600 or (800) 472-2756

SUPPLEMENTARY INFORMATION: DOE has prepared this ROD pursuant to the Council on Environmental Quality (CEQ) regulations for implementing the provisions of NEPA (40 CFR 1500-1508) and the DOE NEPA regulations (10 CFR 1021). The ROD is based on the analyses of environmental impacts identified in the Final SIS EIS (DOE/EIS-0212); consideration of project costs; compliance requirements for systems involved in the handling, transport, and storage of high-level mixed radioactive waste, and public, agency, and tribal comments.

Because NEPA and SEPA are very comparable in their purpose, intent, and procedures, Ecology and DOE decided to prepare one EIS addressing the requirements of both SEPA and NEPA. In February 1994, a memorandum of understanding (MOU) was signed between the DOE, Richland Operations Office and Ecology. The MOU called for the joint preparation of the SIS EIS, the contents of which have been determined to satisfy both SEPA and NEPA requirements.

Purpose and Need: DOE and Ecology identified the need to continue to provide safe storage of high-level radioactive tank wastes while supporting tank farm management and operations prior to implementing decisions made in the ROD for the Tank Waste Remedial System (TWRS) EIS. The TWRS EIS is evaluating the alternatives for permanent disposal of wastes currently stored in tanks at the Hanford Site. To minimize the risk of managing tank wastes prior to the TWRS ROD, a modern, safe, reliable, and compliant replacement cross-site transfer capability is needed to move wastes between the 200 West and 200 East Area tank farms. This transfer capability is required because the 200 West Area has far less useable double shell tank (DST) capacity than there is waste in single shell tanks (SSTs).

The replacement waste transfer capability would provide the means to move waste from the 200 West Area to the available DST capacity located in the 200 East Area.

The ECSTS has been used to transfer wastes from the 200 West Area to the 200 East Area for the past 40 years. This underground pipeline system is at the end of its original design life. Currently, four of six lines are out of service and unavailable to perform transfers due to plugging. The two useable lines do not meet current engineering standards such as, double containment and leak detection, required for waste management facilities.

Based on current tank waste management and operation activities, the SIS EIS addressed the need to do the following:

- Remove Salt Well Liquids (SWLs) from older SSTs to reduce the likelihood of liquid waste escaping from the corroded tanks into the environment. Many of these tanks have leaked and new leaks are developing in these tanks at a rate of more than one per year.
- Provide ability to transfer the tank wastes via a compliant system to mitigate any future safety concerns and use current or future tank space allocations.
- Provide adequate tank waste storage capacity for future waste volumes associated with tank farm operations and other Hanford facility operations.
- Mitigate the flammable gas safety issue in Tank 101-SY.

Summary of Alternatives and Impacts: DOE and Ecology have identified four action alternatives in addition to the no action alternative to satisfy the need to continue to provide safe storage of high-level waste until decisions are made based on the TWRS EIS. The alternatives consist of the preferred alternative, truck transfer alternative, rail transfer alternative, and new storage alternative. DOE evaluated the construction and operation

phases of each alternative to assess potential impacts to the following environmental categories:

- Geology, Seismology, Soils
- Population and Socioeconomics
- Water Resources and Hydrology
- Transportation
- Air Quality
- Land Use
- Radiation
- Cultural Resources
- Noise
- Health Effects
- Biological Resources

The impact analysis showed that there would be no impacts related to geology, seismology, water resources and hydrology, radiation, noise, population and socioeconomics, or cultural resources for any of the alternatives. Environmental categories where potential impacts were identified are discussed under each alternative as applicable.

Preferred Alternative

The preferred alternative consists of the following components:

- Construction and operation of the RCSTS for cross-site transfer of SWLs, and 200 West Area Facility wastes from Tank 102-SY to DSTs in the 200 East Area;
- Construction of a waste retrieval system in Tank 102-SY to retrieve solids;
- Continued operation of a mixer pump in Tank 101-SY;
- Transfer of liquid wastes through the ECSTS until the proposed RCSTS becomes operational in 1998.

Transuranic solids from Tank 102-SY would be retrieved, transferred via the RCSTS and consolidated in 200 East Area DSTs to provide space for transfer of complexed SWLs. The consolidation of tank waste is an ongoing tank farm management action evaluated under prior environmental impact statements and a supplement (ERDA 1538, DOE/EIS-0063, DOE/EIS-0113). Although such retrieval is addressed in the decisions resulting from these NEPA documents, the retrieval of Tank 102-SY sludge was discussed in the SIS EIS for a comprehensive consideration of impacts.

Impacts. Environmental effects identified under the preferred alternative are primarily related to construction activities and include impacts to soils, land use, and biological resources. Construction of the RCSTS and associated facilities would disturb approximately 30 hectares (74 acres) of land, none of which are considered to be prime or unique farmland. Fugitive dust emissions are anticipated during earth moving activities, but would be mitigated by dust suppression measures.

Of the 30 hectares (74 acres) of land that would be disturbed while constructing the RCSTS, approximately 9 hectares (23 acres) would be mature sagebrush/cheatgrass habitat, a State designated Priority Habitat and important habitat for the loggerhead shrike, a Federal and State candidate species; the sagebrush lizard, a Federal candidate species; and the sage sparrow, a State candidate species. The 9 hectares (23 acres) represents 0.01 percent of the total sagebrush habitat at Hanford. The preferred alternative would include establishing habitat restoration sites to mitigate the disturbance of native soil and removal of vegetation in the construction area.

Truck Transfer Alternative

This alternative includes truck transfer of all wastes listed under the preferred alternative, with the exception of solids from Tank 102-SY which would not be retrieved under this alternative. Mitigation of the Tank 101-SY safety issue by continued operation of the mixer pump would also occur under the truck transfer alternative. The alternative would transfer SWL from interim stabilization of 200 West Area SSTs and 200 West Area facility wastes to DSTs in the 200 East Area by truck, without using Tank 102-SY as a staging tank for complexed wastes. The SIS EIS evaluated the 3,800 liters (1,000 gallons) LR-56(H) truck and a hypothetical 19,000 liter (5,000 gallon) tanker truck. The alternative would utilize existing roadways and include construction and operation of a new load facility in 200 West Area and an unload facility in 200 East Area, including underground transfer piping to and from the facilities, and some additional roadway segments.

Impacts. Environmental effects from implementing the truck transfer alternative include impacts to soils, transportation, and worker health, due to the construction of load and unload facilities and roadway segments, and operation of the truck transfer system.

Construction of the load and unload facilities and roadways would disturb approximately 2 hectares (5 acres) of land, none of which is considered to be prime or unique farmland, or mature sagebrush habitat. During construction activities, dust suppression measures would be implemented to reduce fugitive dust emissions.

The truck transfer alternative would use existing Hanford Site roadways and new onsite road extensions to transport approximately 1.9 million liters (5 million gallons) of radioactive waste. Using the LR-56 truck [3,800 liters (1,000 gallons) capacity], approximately 4,691 truck trips would be required over 1,564 working days assuming three trips per day. If the 19,000 liters (5,000 gallons) capacity truck is used, approximately 938 truck trips over 313 working days would be required, assuming three trips per day. Potential traffic circulation impacts could occur from barricaded roads, speed limitations, escorts, and other administrative controls. However, based on a frequency of three truck trips per day, shipping during off-peak hours, and providing advanced notice of truck shipments, no significant adverse traffic circulation impacts are anticipated.

Operators and health physics technicians would be exposed to radiation within acceptable limits during operation of the load and unload facilities. However, estimates for radiation dose to the truck driver yielded an unacceptably high dose. Additional shielding analysis or restrictions on the quantities of radioactive materials would be necessary to ensure that radiation exposures would be as low as reasonably achievable for the drivers.

Rail Transfer Alternative

This alternative includes rail transfer of all wastes listed under the preferred alternative, with the exception of solids from Tank 102-SY which would not be retrieved under this alternative. Mitigation of the Tank 101-SY safety issue by continued operation of the mixer pump would also occur under the rail transfer alternative. The alternative would transfer salt well liquids from interim stabilization of SSTs, and 200 West Area facility wastes by a

hypothetical 38,000 liter (10,000 gallon) rail car. The alternative includes use of existing Hanford Site rail lines, construction and operation of some additional onsite rail line segments, as well as construction and operation of a new load facility in 200 West Area and a new unload facility in 200 East Area.

Impacts. Environmental effects associated with the rail transfer alternative include impacts to soils and transportation. Construction of the load and unload facilities and rail spurs would disturb approximately 2 hectares (5 acres) of land, none of which is considered to be prime or unique farmland, or mature sagebrush habitat. During construction activities, dust suppression measures would be implemented to reduce fugitive dust emissions.

Approximately 470 train trips, assuming one tank car per trip, would be required to transfer the subject waste. Assuming 2 train trips per day, 235 days would be required to transfer the wastes. The two additional daily trips would not impact existing rail operations. Significant impacts to road traffic from road closures during rail transport are not expected because of advance notice of shipments, restricting shipments to off-peak hours, and the short duration of road closures.

New Storage Alternative

This alternative includes mitigation of the Tank 101-SY flammable gas safety issue by dilution and retrieval of the waste. Facilities constructed and operated to accomplish this action would include a new tank facility (NTF), including two new DSTs and associated facilities, a waste retrieval system in Tank 101-SY, a waste retrieval system in Tank 102-SY,

and the RCSTS. This alternative also includes transfer of waste from Tank 102-SY, SWL from interim stabilization of SSTs in the 200 West Area, and transfer of 200 West Area facility wastes as described for the preferred alternative. This alternative would provide additional storage capacity that could be used for other future waste management needs.

Impacts. Environmental effects identified under the new storage alternative are primarily related to construction activities and include impacts to soils, land use, biological resources, and worker exposure. Construction of the RCSTS and NTF would disturb approximately 30 hectares (74 acres) and 20 hectares (50 acres) of land, respectively, none of which are considered to be prime or unique farmland. Fugitive dust emissions are anticipated during earth moving activities, but would be mitigated by dust suppression measures. The 50 hectares (124 acres) of land would be a small incremental addition of land committed to waste management at Hanford.

Approximately 30 hectares (74 acres) of mature sagebrush/cheatgrass habitat would be disturbed from constructing the RCSTS and NTF. The new storage alternative would include establishing habitat restoration sites to mitigate the disturbance of native soil and removal of vegetation in the construction area.

No health effects are anticipated for routine operation of any facilities under the new storage alternative.

No Action Alternative

This alternative would not construct any new tanks, tank retrieval systems, or cross-site transfer systems. The flammable gas safety issue in Tank 101-SY would be managed through continued operation of the existing mixer pump. The remaining supernatant in Tank 102-SY, SWLs from interim stabilization of SSTs, and liquid waste from 200 West Area facilities would be transported from the 200 West Area to the 200 East Area via the ECSTS.

Impacts. There are no environmental impacts associated with normal operations of the no action alternative. However, due to lack of secondary containment and poor leak detection capabilities of the aging ECSTS, leaks to the environment are considered more likely than under the other alternatives evaluated in the SIS EIS. To avoid environmental impacts from a failure of the ECSTS during waste transfer, operational controls prior to waste transfers such as, pressure testing at levels in excess of operational pressures, would be used to confirm the integrity of the ECSTS before waste is introduced into the system.

Environmentally Preferred Alternative: Normal operations under the no action alternative would not result in the loss of State-designated Priority Habitat, would not result in the generation of additional contaminated materials requiring decommissioning and disposal, and would not cause additional worker exposures over existing levels, as would occur under the preferred, truck transfer, rail transfer, and new storage alternatives. Therefore, the no action alternative is considered the environmentally preferred alternative under normal operating conditions.

However, because the existing cross-site transfer system is over 40 years old, there is a higher probability of system failure or an accident than under the other transfer alternatives evaluated in the Final SIS EIS. Additionally, because the existing transfer system is not compliant with current engineering standards requiring double containment and leak detection systems, there is a higher likelihood of a release to the environment under accident conditions than would be anticipated under the other transfer alternatives.

Other Considerations: In addition to the assessment of environmental impacts provided by the SIS EIS, DOE and Ecology considered costs, comments on the Final SIS EIS, and nuclear criticality safety in determining a course of action to meet the need for interim management of Hanford tank wastes.

Costs

Comparative analysis of construction, operation, and decommissioning costs among the alternatives was generated for an interim period of five years and lifecycle operations till 2028. The analysis was based on a comparable set of baseline assumptions regarding waste volumes and transfer schedules, and accurately reflects relative costs among alternatives. However, the estimates may not accurately represent the true cost of implementing a specific alternative once final decisions are reached on waste transfers. Based on the unresolved criticality safety issues described below, retrieval costs for solids removal from Tank 102-SY have been excluded from the preferred and new storage alternatives. The results of the analysis are as follows:

ALTERNATIVE	INTERIM COSTS (1995 dollars in millions)	LIFECYCLE COSTS[b] (1995 dollars in millions)
Preferred	$105.2[a]	$243
Truck Transfer	$125.9	$632.8
Rail Transfer	$113.7	$491.8
New Storage	$328.1[a]	$589.6
No Action	$48.9	NA

[a] Excludes costs for retrieval of solids from Tank 102-SY as proposed in the SIS EIS.

[b] Includes costs for retrieval of solids from Tank 102-SY under all alternatives.

The lifecycle costs for the no action alternative were not estimated because the ECSTS could not meet waste transfer requirements beyond the interim time period. All alternatives include a $36 million decontamination and decommissioning cost for the ECSTS.

Comments Received

DOE and Ecology received comments from two individuals on the Final SIS EIS.

Comment. One individual agreed with continued operation of the mixer pump in Tank 101-SY to mitigate flammable gas accumulation.

Response. DOE will continue the operation of the mixer pump in Tank 101-SY.

Comment. "The fundamental assumption is that the best way to maintain "Safe" storage is to suck liquid waste out of single shell tanks and then move it to a safer double shell tank. Why is that safer? A lot of things can go wrong when you pressurize the waste and move it that can't happen if you leave it in the single shell tanks. Look at the spray leaks from your

"ITRS" and "PPSS" that can kill hundreds of people. Compare that to the lack of impacts to people if you leave the waste in the single shell tanks as laid out in the Hanford EIS that produced the empty grout vaults and the unbuilt vitrification plant. [Assumed DOE/EIS-0113] Those facilities weren't needed either and the Department rushed to the wrong decision spending millions of dollars unnecessarily."

Response. In the Record of Decision based on the *Final Environmental Impact Statement for the Disposal of Hanford Defense High-Level, Transuranic, and Tank Wastes* (HDW-EIS) (53 FR 12449), and again in the Finding of No Significant Impact for an environmental assessment for the Waste Tank Safety Program (DOE/EA-0915), DOE decided to continue to safely store the SST waste prior to making a decision on the disposal of this waste. The decision on the final disposition of the SST waste will be made by the Department in the TWRS EIS. The SST interim stabilization program is an ongoing program initiated in late 1970s to reduce the potential for release of high-level wastes into the environment and allow continued safe storage of the high-level sludge, salt cake, and non-pumpable liquid waste. Although no adverse radiological impacts were postulated by the HDW-EIS for leaking SSTs, including the ultraconservative 40,000 m^3 (10.5 million gallons) release scenario evaluated, DOE policy is to reduce the potential for any liquid release whenever practicable [DOE/EIS-0113]. Further, all retrievals and waste transfers will occur at subcritical levels in accordance with existing procedures. There are currently 67 SSTs which have been declared confirmed or assumed leakers. These SSTs have released 2.3 to 3.4 millon liters (600,000 to 900,000 gallons) of waste to the environment. Therefore, it is DOE's policy that the continued safe storage of the SST waste pending a final disposal decision requires the continuation of the SST interim stabilization program, which is scheduled to be completed by the year 2000.

The postulated spray releases from Initial Tank Retrieval System (ITRS) and Past Practice Sluicing System (PPSS) evaluated in the Final SIS EIS have a probability of extremely unlikely to incredible or 10^{-5} to 10^{-7} per year. When compared to the almost certain release to the environment if liquid wastes are left in SSTs, DOE has determined that the risks of transfer are acceptable and that the risks to the environment from suspension of the interim stabilization program are unacceptable.

Comment. "What are the true impacts of leaving the waste in the single shell tanks? Are they any greater now than they were in the old EIS?"

Response. The SIS EIS is an interim action EIS which considers only near term actions required to safely manage tank wastes until disposal decisions are made through the TWRS ROD. Leaving waste in the SSTs is beyond the scope of the SIS EIS. The TWRS EIS is currently re-evaluating the consequences which would result from leaving wastes in single shell tanks.

Comment. "How much money will you waste this time on an action that isn't needed?"

Response. The costs of the alternative actions are specified above. DOE believes that the action is needed and the costs are justified.

Comment. "Your purpose and need statement basically says you need it because the State told you to do it in the TPA. So you already made the decision in a fundamentally flawed way without regard to NEPA. Once again the NEPA process at DOE is a sham ... The bottom line is that the DOE NEPA process is a sham, and now the State is a part of it. You make decisions and then try to justify them with EISs."

Response. This EIS was prepared to comply with the requirements of NEPA. An EIS document identifies and evaluates the environmental impacts of the proposed action and reasonable alternatives. The Tri Party Agreement defines the schedules and milestones for taking certain cleanup actions at the Hanford Site. The Tri Party Agreement is annually revisited and can be changed if new information arises or situations change. For example, the Tri Party Agreement had milestones for the six new double shell tanks which were identified in Draft SIS EIS. Public comments received on the Draft SIS EIS as part of the NEPA process and new studies indicated that six new double shell tanks were not needed. As a result, an adjustment to DOE's preferred alternative was made in the Final SIS EIS and the Tri Party Agreement was modified to delete the milestones for construction of new double shell tanks.

Comment. "Even if you absolutely had to move some waste you already have an existing pipeline system that can move liquids. This year you moved over 400,000 gallons of waste through it. Why can't you use it for more transfers? In fact your EIS says you plan to do just that. For this EIS most of the waste is planned to go through the existing pipelines. Why can't you send a few more transfers through the existing lines? This would undoubtedly be cheaper and less damaging to the environment. Before the last transfer the line was pressured tested to make sure it would be safe. Why not just do that every time? You could take very little risk by doing this and you'd save the people of this country tens of millions of dollars."

Response. The existing lines are planned to be used for liquid waste transfers as indicated in the comment. However, due to the age of the lines and likelihood of failure of these lines, DOE believes it is prudent to replace these lines with a modern, safe, reliable and compliant

waste transfer system. This will provide DOE with a more certain ability to meet its need for cross-site waste transfers.

Comment. "A new line isn't needed just to move the amount of liquid waste specified in this EIS. The State is making DOE build this line to service the TWRS planned mission of vitrifying all the waste in the tanks. If that's the true need, then this action needs to be covered in the TWRS EIS where there might be a real need. Building it for this trumped up need will prejudice the TWRS decision (which already seems to have been made.)"

Response. DOE has a need to move waste cross-site prior to implementing decisions based on the TWRS EIS. This need exists independent of the decisions that may be reached based on the TWRS EIS. The replacement cross site transfer system could become a component of the TWRS, but DOE does not believe that its existence would be prejudicial to any of the alternatives being considered within the TWRS EIS.

Comment. "How in the world can you be privatizing TWRS if you haven't already made the decision?"

Response. Privatization of TWRS is not an action that was considered in this EIS.

Tank Farm Criticality Control

Through an ongoing safety evaluation process, DOE recently revisited its operational assumptions regarding the potential for the occurrence of a nuclear criticality event during waste storage and transfers. Changes to the Tank Farm Authorization Basis for Criticality that were approved in September 1995, were rescinded by DOE in October 1995, pending

the outcome of a criticality safety evaluation process outlined for the Defense Nuclear Facilities Safety Board (DNFSB) on November 8, 1995. Until these criticality safety evaluations are completed, Hanford will operate under the historic limits which maintain reasonable assurance of subcritical conditions during tank farm storage and transfer operations. Of the actions evaluated in the Final SIS EIS, only the retrieval of solids from Tank 102-SY is affected by the technical uncertainties regarding criticality. Based on the quantities of plutonium in Tank 102-SY sludge, retrieval of the solids falls within the scope of the criticality safety issues which will be evaluated over the next few months. As a result, a decision on retrieval of solids from Tank 102-SY is being deferred in this ROD. Tank 101-SY mixer pump operations, interim operation of the ECSTS, operation of the RCSTS, SWL retrievals, and 200 West Area Facility waste generation, would all occur within the applicable criticality limits and would be subcritical.

Decision: Based on the consideration of environmental impacts, cost, engineering standards, criticality safety, and comments received on the Final SIS EIS, DOE will construct and operate the RCSTS on the proposed route identified in the Final SIS EIS, continue operating the mixer pump in Tank 101-SY, and transfer waste from the interim stabilization program and other facility waste in the 200 West Area. During construction of the RCSTS, SWLs and 200 West Area facility wastes will be transferred through the ECSTS to DST storage in the 200 East Area. These actions will provide safe, compliant, and reliable high-level waste transfer capabilities and will operate with wastes at subcritical levels under the existing Hanford Tank Farm Interim Safety Basis, until final disposal decisions are made under the TWRS EIS.

The RCSTS will provide Hanford with a waste transfer capability that meets current engineering standards for double containment and leak detection. As compared to other transfer alternatives, the RCSTS will:

- More effectively minimize worker exposures and meet ALARA requirements through remote operations and underground transfers;
- Cost less during both the interim time period and less over a lifecycle operation than the other action alternatives;
- Provide greater operational flexibility by conducting transfers that are independent of weather or site traffic;
- More efficiently manage the transfer of millions of gallons of wastes required in the near term and potentially required in the future.

The RCSTS will be built on the proposed route identified in the Final SIS EIS. Alternative routes evaluated in the EIS would have environmental impacts identical to the proposed route except with respect to impacts on Priority Habitat. The western segment optional route would reduce habitat impacts by only 0.6 hectares (1.6 acres) but at a significant cost increase. The eastern option would result in an increase in habitat loss by 2.1 hectares (5.3 acres) over the proposed route. Because habitat impacts will be mitigated, engineering siting criteria are more favorable, and construction costs would be less, the proposed RCSTS route is selected.

The continued operation of a mixer pump in Tank 101-SY is selected to mitigate the flammable gas safety issue in that tank. The mixer pump has been proven to be effective mitigation during more than one year of operations. A replacement pump is available and will be maintained as a contingency should the existing pump fail. Dilution as a mitigation was not selected due to the success of the mixer pump, and because it would increase waste volumes requiring new tanks for storage and generate more waste for future disposal.

DOE will continue to use the ECSTS until the RCSTS is operational to provide access to 200 East Area DSTs for storage of 200 West Area facility wastes and retrieved SWLs. SWL retrievals will continue to reduce the risk to the environment from leaking SSTs. Operational procedures will assure the integrity of the ECSTS prior to any waste transfers. The current planning base estimates that the ECSTS will operate for approximately 625 hours during five transfers before the RCSTS is operational.

Based on the new information available to DOE, since the issuance of the Final SIS EIS, regarding nuclear criticality safety concerns during retrieval, transfer, and storage actions, DOE has decided to defer a decision on the construction and operation of a retrieval system in Tank 102-SY. Pending the outcome of the technical initiative to resolve the tank waste criticality safety issue, transfers of wastes through Tank 102-SY will be limited to non-complexed wastes.

Mitigation

All practical means to avoid or mitigate environmental impacts from the actions to be implemented by this ROD have been adopted by DOE. With the exception of habitat losses and dust generation from construction activities, and the potential to encounter cultural resources during subsurface disturbance, all potentially significant impacts have been avoided.

Construction of the RCSTS will result in impacts that can be either avoided or minimized through the implementation of mitigation measures. The surface and subsurface disturbance

required for the installation of the RCSTS, a 10 kilometer (6.2 mile) double-wall pipeline, has the potential to affect biota, dust emissions, and cultural resources. Biota will be displaced due to the loss of habitat. Particulate emissions in the form of dust releases from exposed soils will occur if not mitigated. Cultural resources may be encountered during subsurface excavations necessitating mitigation actions.

Impacts to biota resulting from the loss of habitat will be mitigated through a program of transplantation of mature sagebrush from the RCSTS construction corridor to a mitigation site located in close proximity to the impacted area. In addition, tublings will be cultivated and transferred to the mitigation site. For the 9 hectares (23 acres) of mature sagebrush lost to the RCSTS construction, 27 hectares (69 acres) of sagebrush habitat will be planted.

Dust emissions will be mitigated by a combination of watering and reseeding of disturbed areas. In areas of active construction, water will be applied at frequencies sufficient to prevent unacceptable releases of dust. After RCSTS construction is completed, those areas not required for routine access or maintenance will be reseeded with native grass species.

No archaeological or historical sites were identified in the corridor to be disturbed by RCSTS construction. However, one potential archaeological site was identified within the compensation area to be utilized for habitat mitigation. Impacts to this site will be mitigated through avoidance. All ground-disturbing actions that occur during RCSTS construction or habitat mitigation activities will be monitored. A qualified archaeologist identified by DOE will assess the significance of any resources uncovered. The archaeologist will coordinate with DOE to initiate consultation with the State Historic Preservation Officer (SHPO) and the

appropriate tribal representatives, including members of the Wanapum People, Yakama Indian Nation, Confederated Tribes of the Umatilla Indian Reservation, and Nez Perce Tribe. To the extent possible, all materials determined significant will be avoided during subsequent activities and will be left in place. If this is not possible, removal will be conducted in consultation with DOE, the SHPO, and appropriate tribal representatives.

In accordance with Section 1021.331(a) of the DOE regulations implementing NEPA (10 CFR 1021), a Mitigation Action Plan (MAP) will be prepared that addresses mitigation actions associated with the course of action directed by this ROD.

Issued

The State of Washington concurred on this Record of Decision via letter to the Department of Energy on November 21, 1995. This Record of Decision for the Safe Interim Storage of Hanford Tank Wastes is issued by the Department of Energy, Richland Operations Office, Richland, Washington on November 21, 1995.

John D. Wagoner
Manager
DOE Richland Operations Office

DOE/EIS-0212MAP

MITIGATION ACTION PLAN

FOR

SAFE INTERIM STORAGE OF HANFORD TANK WASTES

Hanford Site

Richland, Washington

NOVEMBER, 1995

U.S DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
RICHLAND, WASHINGTON 99352

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DOE SIS EIS
MITIGATION ACTION PLAN

This mitigation action plan establishes the plans and procedures by which the U.S. Department of Energy (DOE) will mitigate certain impacts resulting from the implementation of the preferred alternative evaluated in the Safe Interim Storage of Hanford Tank Wastes Final Environmental Impact Statement (SIS EIS)(DOE/EIS-0212F), that was issued on October 20, 1995. This Mitigation Action Plan has been prepared in compliance with the Council on Environmental Quality Implementing Regulations [40 Code of Federal Regulations (CFR) 1500-1508] for the National Environmental Policy Act (NEPA) and DOE's NEPA Regulations, 10 CFR 1021.

In a Record of Decision, signed on November 21, 1995, DOE decided to implement a portion of the preferred alternative evaluated in the SIS EIS. The actions to be taken include:

- Construction and operation of the replacement cross-site transfer system to transfer waste from the 200 West Area to the 200 East Area,

- Continued operation of the mixer pump in Tank 101-SY to mitigate its flammable gas release events,

- Transfer of liquid wastes through the existing cross-site transfer system until the proposed replacement becomes operational in 1998.

Of these actions, only the construction of the replacement cross-site transfer system will have impacts that require mitigation. The surface and subsurface disturbance required for the installation of the replacement cross-site transfer system, a 10 kilometer (6.2 mile) double-wall pipeline, has the potential to affect biota, dust emissions, and cultural resources. Biota will be displaced due to the loss of habitat. Particulate emissions in the form of dust releases from exposed soils will occur if not mitigated. Cultural resources may be encountered during subsurface excavations necessitating mitigation actions.

The construction will remove mature sagebrush habitat that is classified by the Washington State Department of Fish & Wildlife as Priority Habitat. Section 1 discusses the mitigation measures that will be implemented to reduce the impacts from this habitat loss.

In disturbing surface soils, construction will also increase the potential for dust emissions from the site until construction activities are completed and the surface is revegetated. Section 2 describes the planned mitigation measures for controlling dust emissions during construction.

Cultural resource surveys were conducted in support of the impact evaluations performed in the SIS EIS. No archaeological or historical sites were identified in the corridor to be disturbed for the replacement cross-site transfer system construction. One potential archaeological site, which will be avoided, was identified in the area which will be utilized for habitat mitigation. Section 3 discusses the planned procedures and mitigation measures to be implemented to avoid or minimize impacts to cultural resources that may be encountered during subsurface excavation.

1 MITIGATION OF IMPACTS TO PRIORITY HABITATS

The process that will be implemented to mitigate the impacts from the loss of Priority Habitat from the construction of the replacement cross-site transfer system is detailed in this Section. The replacement cross-site transfer system location and construction activities are briefly summarized in Section 1.1. Section 1.2 summarizes the expected habitat impacts that will occur during construction. Section 1.3 establishes the mitigation goals, objectives and performance standards that will be applied to measure the success of the mitigation actions. Mitigation of the habitat loss from construction will take the form of revegetation of another area of the Hanford Site. Section 1.4 provides a brief description of the compensatory mitigation site in which all transplanting will occur. Section 1.5 specifies the mitigation actions that will be implemented. Section 1.6 establishes the monitoring program that will be implemented to oversee the conduct of mitigation actions, evaluate the success of the actions, and initiate corrective actions if needed. Section 1.7 describes the measures that will be utilized to protect the mitigation site from any future disturbance, insuring the long term success of the habitat mitigation effort. Section 1.8 defines the maintenance and contingency plans that will be applied to assure the success of revegetation efforts. Section 1.9 defines the organizations responsible for the conduct of each aspect of the habitat mitigation program.

1.1 SUMMARY DESCRIPTION OF REPLACEMENT CROSS-SITE TRANSFER SYSTEM CONSTRUCTION

The construction of the replacement cross-site transfer system will involve surface and subsurface disturbance within the 200 West and East Areas and in a corridor between the areas. As shown on Figure 1, mature shrub-steppe priority habitat will be lost in the replacement cross-site transfer system corridor between the 200 East and 200 West Areas. As described in the SIS EIS, habitat loss in this area will occur for the foreseeable future and, therefore, mitigation of this loss is planned.

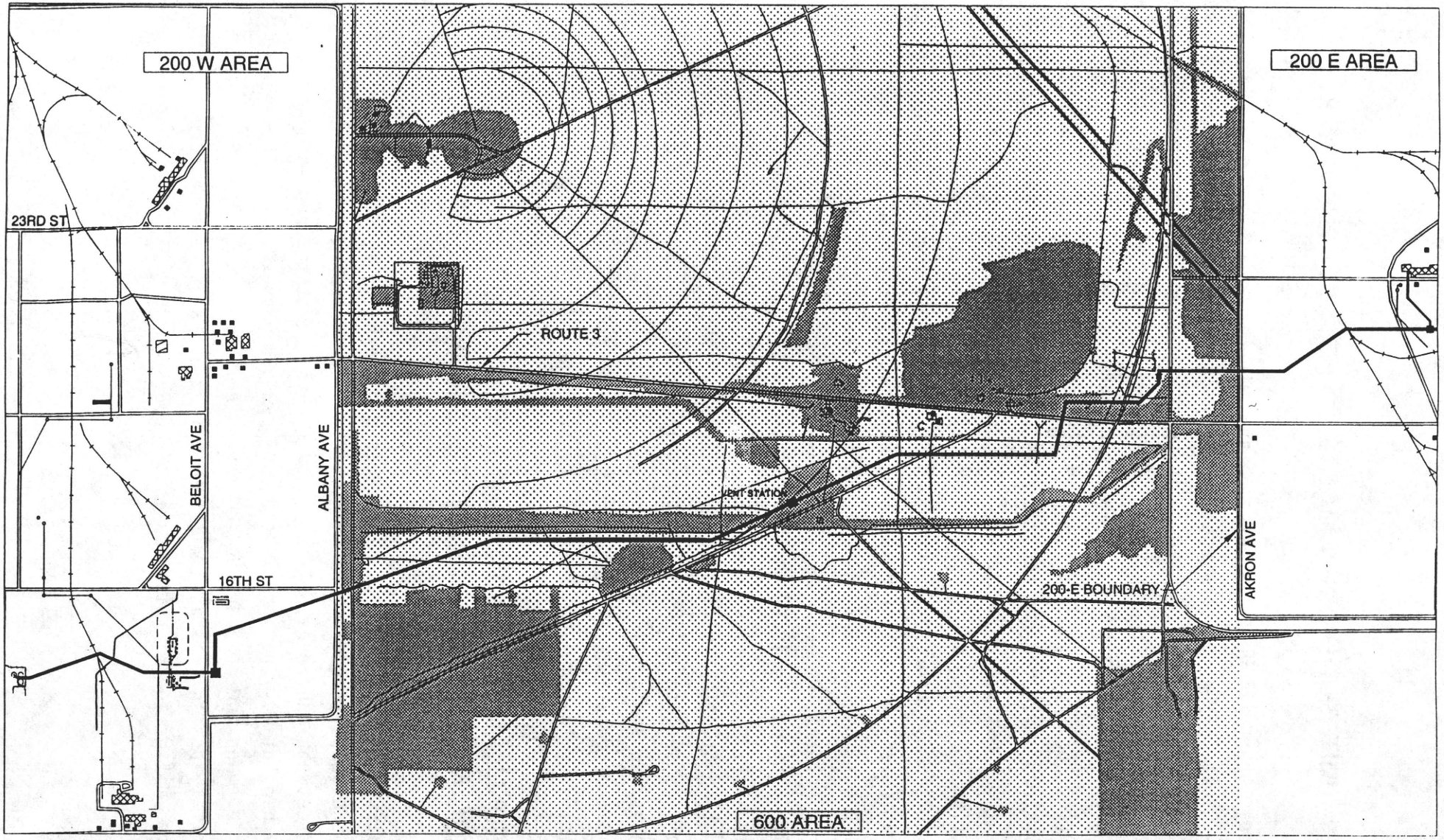


Figure 1. Vegetation Map Between 200 East and West Ar

1.2 SUMMARY OF IMPACTS TO BE MITIGATED

The primary biological impact of note is the removal of shrub-steppe habitat dominated by mature big sagebrush in the construction corridor. This habitat is recognized as a Priority Habitat by the Washington State Department of Fish & Wildlife and is noted for its value to a variety of wildlife species, including several candidates for listing as threatened or endangered under the Endangered Species Act.

Under the selected alternative, 9 hectares (23 acres) will initially lose the value of the mature sagebrush habitat due to construction of the replacement cross-site transfer system. Mitigation for this impact is the primary focus of this section of the Mitigation Action Plan. The mitigation concepts developed in this Mitigation Action Plan generally follow the mitigation approach given in the Draft and Final EIS and apply the key elements of the Draft Sitewide Mitigation Strategy, being drafted by the U.S Department of Energy's Pacific Northwest National Laboratory.

1.3 MITIGATION GOALS, OBJECTIVES, AND PERFORMANCE STANDARDS

DOE intends to implement reasonable measures to avoid or minimize impacts to important habitat caused by the selected alternative. Measures to avoid and minimize impacts have been applied as far as feasible and are now part of the design of the alternative selected in the Record of Decision. Through this NEPA process, the anticipated acreage of loss of mature sagebrush habitat has been reduced substantially, based in part on agency and public comments. The construction corridor for the replacement cross-site transfer system will incorporate previously cleared roadways to reduce the width of the construction corridor from a nominal 30.5 meters (100 feet) to 26 meters (85 feet). DOE plans to transplant mature shrubs salvaged from the replacement cross-site transfer system area to the mitigation site.

The overall goal is to compensate for the loss of habitat values that cannot be avoided by recreating similar habitat values. The primary means of accomplishing that is to establish mature sagebrush cover on the selected

mitigation site at a density useful to key wildlife species. The construction corridor for the replacement cross-site transfer system will be reseeded with a native grass mixture including locally derived native grass seed, if available, to restore some habitat value.

The objectives for achieving the mitigation goal are primarily centered on survival of transplanted shrubs and developing information that will increase the success of future habitat mitigation efforts at Hanford and elsewhere.

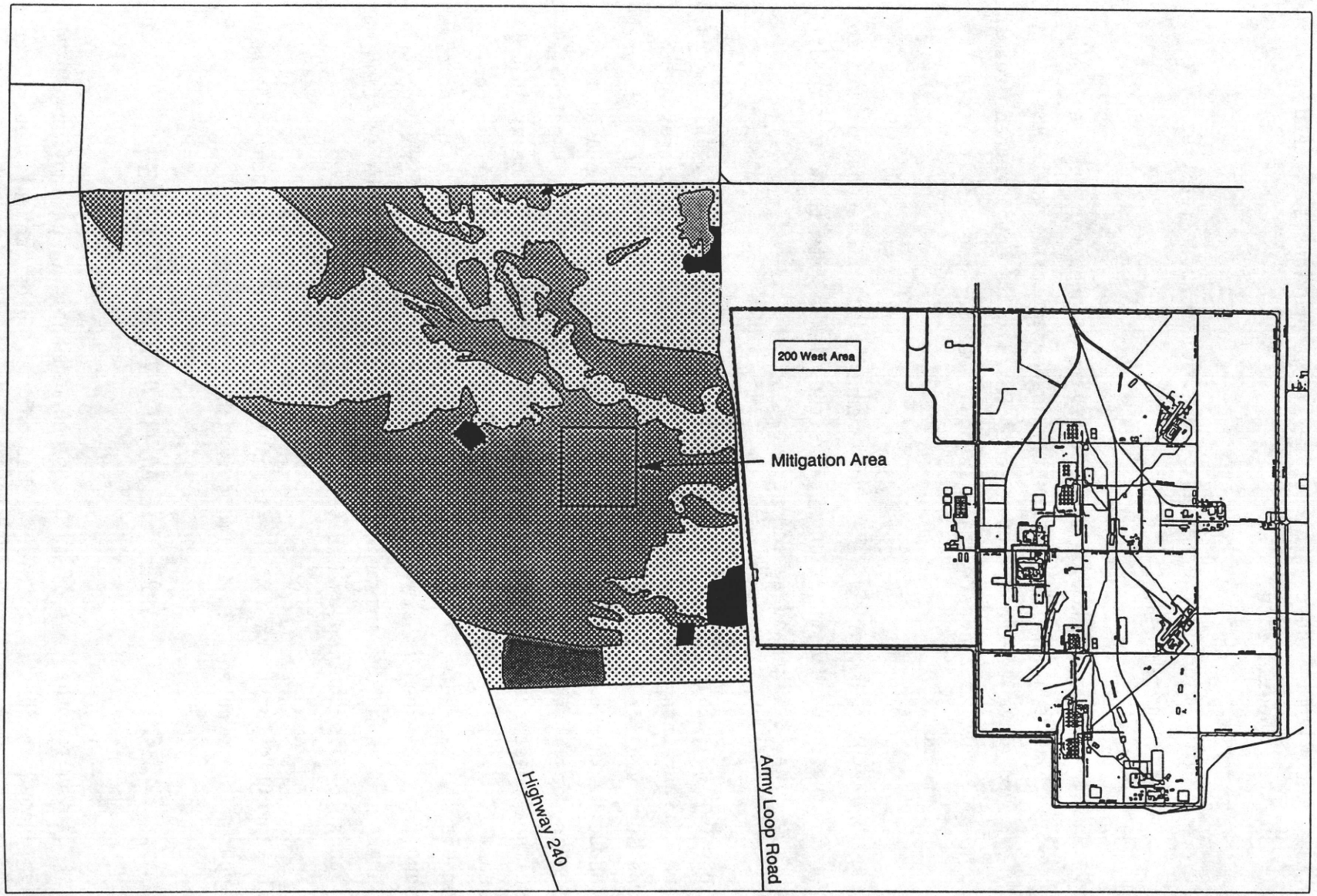
Performance standards are established to provide a benchmark to judge the success of the mitigation or establish a threshold to trigger implementation of contingency measures. The performance standard for this project is based on the survival rate of the sagebrush plants. The density of mature shrub transplants on the mitigation site was selected to provide at least the minimum nest site needs of loggerhead shrikes and sage sparrows, plus a margin for error. If 60 percent of the mature shrubs survive, there will be adequate shrub coverage to be selected by the birds as nesting habitat. The performance standard for mature shrub transplants will be 60 percent survival after one year and also after three years. For the tublings, a similar survival rate is reasonable as a standard. This would result in sagebrush spacing of 4.6 to 6.1 meters (15 to 20 feet) - comparable to habitat being lost.

1.4 DESCRIPTION OF COMPENSATORY MITIGATION SITE

The planned mitigation site is located west of the 200 West Area, near Army Loop Road as shown on Figure 2. It was selected using the following criteria:

- The shrub overstory is missing because of a previous burn, but the understory of native grass and forb species is relatively intact.

- The location is strategically placed to help bridge a large gap in shrub cover and facilitate animal movement between existing shrub areas through shrub cover, thus reducing existing habitat fragmentation.


200 West Area
Mitigation Area
Highway 240
Army Loop Road
Disturbed areas
Cheatgrass
Burned Shrub-steppe
Shrub\steppe
Hopsage/Greasewood
0
0.5
1
2
Scale in Kilometers
0
0.5
1
2

- There is existing vehicle access, so new habitat disturbance will be minimized. There is otherwise little previous surface disturbance in the proposed site.

- The location is the nearest one with the above features to the disturbance area.

- No known construction or facility is planned for the area. The site is adjacent to the permanently abandoned Basalt Waste Isolation Project site and includes some closed wells and a fenced area that was planned as a construction laydown area for the Basalt Waste Isolation Project.

- The site is part of a larger area of similar characteristics so that the planned mitigation retains the flexibility to adjust to differing final design and agreement details.

In order to retain flexibility for final design of the mitigation area, an area larger than that expected to be needed, about 111 hectares, (275 acres) was surveyed for cultural resources and had a baseline ecological survey conducted in August, 1995. The results of the surveys were used to determine the boundaries and optimum layout of the mitigation area. A potential cultural resource site identified during the surveys will be avoided by at least 30 meters (100 feet). The planting site or sites will be configured to bridge the gap between mature sagebrush stands. The transplanting of mature shrubs is intended to provide nesting sites or territories for loggerhead shrikes. The mature shrubs will be planted contiguous with existing mature stands to make continuous habitat.

The specific locations for the transplanted mature sagebrush plants and the areas to be planted with tublings are shown in Figure 3.

1.5 DESCRIPTION OF THE MITIGATION ACTIONS

Mitigation for the loss of mature sagebrush habitat, part of the State designated shrub steppe Priority Habitat, is to be accomplished by replanting

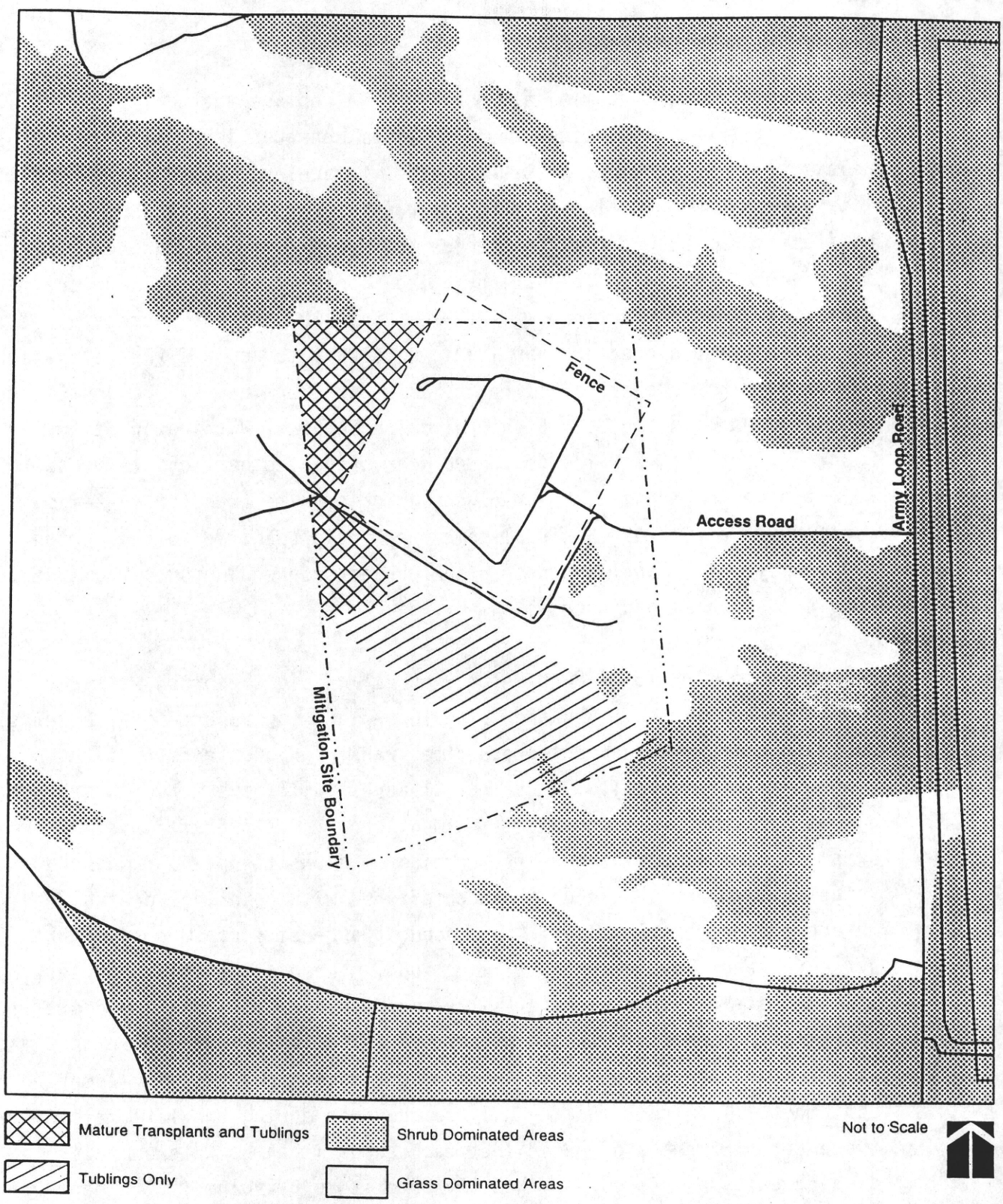


Figure 3. Mitigation Site Planting Plan

sagebrush shrubs. The mitigation goal is to replace the habitat value lost from replacement cross-site transfer system construction. Since sagebrush is relatively slow growing, it takes decades to achieve maturity. During this interim the habitat value is much lower for several wildlife species and the habitat is unusable for other species that require mature shrubs for a specific activity such as nesting. Also, because the probability that the habitat replacement actions will be less than 100 percent successful, a replacement ratio greater than 1:1 is necessary to achieve the mitigation goal. For this project a 3:1 ratio has been determined by DOE and Ecology, in consultation with the U.S. Fish & Wildlife Service, Washington State Department of Fish & Wildlife, and other interested parties, to be appropriate to mitigate the impacts from replacement cross-site transfer system construction. Use of this replacement ratio is specific to this project and may or may not be applicable to other projects depending on circumstances specific to those projects.

At the ratio of 3:1, 27 hectares (69 acres) of big sagebrush will be reestablished in the mitigation site to replace the 9 hectares (23 acres) of habitat lost to replacement cross-site transfer system construction. Of the 27 hectares (69 acres), 9 hectares (23 acres) will have mature sagebrush plants transplanted from the replacement cross-site transfer system corridor prior to general clearing of the corridor, in an attempt to regain habitat value much sooner than could be accomplished with seedlings or tublings. The mature shrub transplants will be placed at a density of 50 per hectares (20 per acre) and their planting will be supplemented with tubling nursery stock at a density of 500 per hectares (200 per acre) within this 9 hectares (23 acre) mitigation plot. The contract specifications will require that the shrubs and their rootballs be kept intact, such as by using tree-moving equipment. The transplanting will be required during the late fall or winter (November - March) and the soil at each shrub is to be watered prior to digging unless it is already wet (7.5% moisture by volume) at a depth of 60 centimeters (2 feet).

The remaining 18 hectares (46 acres) of the 27 hectares (69 acre) mitigation site will be planted with tublings at a density of 750 per hectares (300 per acre). The tublings will be required to be grown from seed collected on or near the Hanford Reservation. The planting of tublings, therefore, will occur

about a year later than the transplanting of the mature shrubs and will also be required during the late fall or winter (November - March).

The construction corridor for the replacement cross-site transfer system will be reseeded after completion of all surface disturbance with a native grass seed mixture including locally derived native grass seed, if available, to restore some habitat value. To assure success, seeding of the replacement cross-site transfer system corridor will be conducted to coincide with fall rains.

1.6 MONITORING PLAN

A time-zero report will be generated to document the conditions of the mitigation actions as soon as they are implemented. The time-zero report forms the basis for future compliance monitoring, and includes the specifics of monitoring procedures and locations. The locations of the mature shrub transplant area and each differing treatment area will be mapped, with sufficient global positioning system points labeled to assure that the exact area can be relocated for monitoring.

Monitoring after the time-zero report is required to assure that the mitigation measures comply with the performance standards and that the mitigation is successful. Since an important part of the mitigation value for this project is the information gained about the success of the various methods applied, monitoring of the survival and growth of the planted shrubs will be conducted. Transects established in the time-zero report will be resampled in each monitoring year. For this project, monitoring will be conducted in year one, year three, and year five after the completion of the time-zero report. The monitoring activity is to be done in June of each monitoring year.

A report will be completed by September 1 of each monitoring year. Copies will to be provided to the U.S. Fish & Wildlife Service, Washington State Department of Fish & Wildlife, and the Hanford Site Natural Resource Trustees Council by September 30 for their information.

1.7 SITE PROTECTION

To protect undisturbed areas adjacent to the mitigation site from equipment damage during transplanting, the boundary of the mitigation site will be flagged. This will be done prior to letting bids for the work, and avoidance of the areas outside the mitigation site will be a condition on the bid specifications. Long term protection will be enhanced by erecting permanent signs posted on each side of the mitigation area, warning future visitors not to disturb the site.

1.8 MAINTENANCE

The success of transplanting will require active management, involving routine maintenance and responsiveness to identified problems. Some level of maintenance activity will be required through the first five years of the mitigation action.

Irrigation will be required for transplanted mature shrubs during the spring of 1996 continuing through June. Irrigation is to be weekly from the first of May to the middle of June, then one last irrigation at the end of June. Sufficient water [approximately 3.8 liters (1 gallon)] will be provided to soak the soil to below the depth of the rootball. The amount of irrigation water required will depend on the amount of rainfall received during the period. With more rainfall, less irrigation will be needed.

Irrigation of the transplanted mature sagebrush plants during the first year is the only required maintenance measure. If the results of monitoring in years one or three shows that the survival rate of sagebrush transplants or tublings is below the performance standard of 60 percent, then replacement tublings will be planted in year two or four, respectively. It is not reasonable to assume that mature transplants be replaced with other mature plants, because additional mature sagebrush habitat would be disturbed to salvage the plants to transplant. Shrubs that die are to be left in place to provide some habitat structure.

1.9 RESPONSIBILITIES

DOE, through contractors, will implement the mitigation actions and be ultimately responsible for the success of the mitigation action. The implementation specifications of each subcontract will define the specific actions, timing, and locations to correspond to this Mitigation Action Plan.

Monitoring of the implementation of mitigation actions will be done by a scientist knowledgeable of the plans and approved by DOE project management. This onsite monitoring will prevent implementation activities from encroaching beyond the approved boundaries. It will also assure that the plans are followed or that substitute plans, when required, are in keeping with the spirit of the original plans. The implementation monitor will have stop-work authority to resolve conflicts in interpretation of specifications or violations of specifications that may have notable impacts.

A contractor to DOE will prepare the time-zero report which characterizes the conditions of the mitigation site after the completion of all transplanting activities. In addition, the same contractor will conduct the monitoring planned for years one, three, and five. DOE will be responsible for future contingency measures, such as replanting. No further active management of the mitigation site is planned after year five.

The monitoring contractor will provide the monitoring reports to DOE project management. DOE will supply copies to the U.S. Fish & Wildlife Service, Washington State Department of Fish & Wildlife, and the Hanford Site Natural Resource Trustees Council for information.

2 MITIGATION OF CONSTRUCTION DUST IMPACTS

Construction of the replacement cross-site transfer system has the potential to generate fugitive dust emissions during surface and subsurface construction. This impact is routinely mitigated at Hanford and will not require any significant controls or long term monitoring and reporting. Section 2.1 describes the actions needed to mitigate fugitive dust emissions. Section 2.2 identifies the roles and responsibilities of those involved in dust mitigation. Section 2.3 establishes the criteria by which mitigation success is measured. Section 2.4 specifies the frequency at which mitigation measures must be employed during construction. Section 2.5 identifies the anticipated reporting that may occur to document fugitive dust mitigation activities.

2.1 MITIGATION ACTION

The semi-arid climate is responsible for low moisture conditions during part of each year. When drier soil is excavated, piled, conveyed, dropped or driven over, soil fines are mechanically released into the atmosphere. Fugitive dust from construction activities requires action to reduce the entrainment into the atmosphere. Air discharge permits are not required for construction dust sources.

Two methods of construction dust control are available to reduce construction dust entrainment and wind blown dust:

- Water application to soil
- Reseeding of disturbed areas after construction is complete.

Water would be used to control dust on roadways, excavation areas, and soil storage areas as needed during excavation. Reseeding would provide long term dust control after the replacement cross-site transfer system is completed.

2.2 RESPONSIBILITIES

Assuring compliance of contractors with dust control mitigation requirements will be the responsibility of DOE.

2.3 EVALUATION CRITERIA

Adequate dust mitigation is measured onsite by visual observation. The minimization goal is met when no continuously raised dust from the replacement cross-site transfer system construction site is visible in the atmosphere.

2.4 SCHEDULE

Access roads, areas to be bulldozed, and scraped or compacted areas will be prewatered or continuously watered to minimize airborne dust, when wet weather does not supply needed moisture.

Restorative reseeding will be the final mitigation measure used to control wind blown dust from the finished work sites. Reseeding must occur during the fall to assure success. Native grass seed requirements will include locally derived native grass species, if available.

No specific water application schedule for general construction activities during drier times of the year is stipulated; however, experience indicates that construction roads or other working areas require water application approximately 2 to 3 times per working day to minimize airborne dust.

2.5 DOCUMENTATION

Construction contracts will contain provisions for dust control by water application. DOE will mandate that the contractor will utilize the Daily Field Report for each project site to report on dust control measures employed and their effectiveness. DOE will assist the contractor in selecting the appropriate dust control action, taking into consideration wind, precipitation, and scheduled soil disturbing activities.

DOE/EIS-0212
VOLUME 1 OF 2

VOLUME 1

FINAL ENVIRONMENTAL IMPACT STATEMENT

SAFE INTERIM STORAGE OF HANFORD TANK WASTES

Hanford Site

Richland, Washington

WASHINGTON STATE
DEPARTMENT OF
ECOLOGY

DEPARTMENT OF ENERGY · UNITED STATES OF AMERICA ·

OCTOBER, 1995

WASHINGTON STATE DEPARTMENT OF ECOLOGY
NUCLEAR WASTE PROGRAM
LACEY, WASHINGTON 98503

U.S DEPARTMENT OF ENERGY
RICHLAND OPERATIONS OFFICE
RICHLAND, WASHINGTON 99352

NEPA/SEPA FACT SHEET

DOCUMENT TITLE AND LOCATION OF PROJECT: Safe Interim Storage of Hanford Tank Wastes, Final Environmental Impact Statement; Hanford Site, Richland, Washington.

ABSTRACT: This Final Environmental Impact Statement has been prepared pursuant to the National Environmental Policy Act and the Washington State Environmental Policy Act. U.S. Department of Energy and Washington State Department of Ecology have identified the need to maintain safe storage of high-level radioactive wastes currently stored in the older single-shell tanks, the Watchlist Tank 101-SY, and future waste volumes associated with tank farm and other Hanford facility operations, including a need to provide a modern, safe, reliable, and regulatory-compliant replacement cross-site transfer capability. The purpose of this action is to prevent uncontrolled releases to the environment by maintaining safe storage of high-level tank wastes.

The following alternatives have been identified for maintaining safe interim storage of Hanford tank wastes during the interim period prior to making and implementing decisions as part of the Tank Waste Remediation System Environmental Impact Statement. A complete description of the alternatives is provided in Section 3. Section 5 provides an assessment of environmental impacts which would result from implementing each alternative.

Preferred Alternative - The preferred alternative consists of construction and operation of a replacement cross-site transfer system, a retrieval and transfer system in Tank 102-SY to remove transuranic sludge and residual supernatant, continued operation of the existing mixer pump in Tank 101-SY to mitigate its flammable gas safety issue, and transfer of salt well liquids from single-shell tanks and facility waste streams from the 200 West Area to available existing double-shell tank space in the 200 East Area. The initial cross site waste transfers would utilize the existing cross-site transfer system. At the time the replacement transfer system becomes operational, waste would be transferred exclusively via the replacement cross-site transfer system.

Truck Transfer Alternative - The truck transfer alternative consists of constructing and operating a high level radioactive waste load facility and a waste unload facility, and using tanker trucks to transfer salt well liquids from the single-shell tanks and facility waste streams from the 200 West Area to available existing double-shell tank space in the 200 East Area. This alternative includes use of the existing roadways utilizing either a modified tanker trailer truck or the LR-56(H) truck. The continued operation of the existing mixer pump in Tank 101-SY would mitigate its flammable gas safety issue.

Rail Transfer Alternative - The rail transfer alternative consists of constructing and operating a high level radioactive waste load facility and a waste unload facility, and using rail tanker cars to transfer salt well liquids from the single-shell tanks and facility waste streams from the 200 West Area to available existing double-shell tank space in the 200 East Area. The rail transfer also includes construction of additional railway segments, operation of a railcar, and continued operation of the existing mixer pump in Tank 101-SY to mitigate its flammable gas safety issue.

New Storage Alternative - The new storage alternative consists of construction and operation of two new double-shell tanks and their associated facilities, the replacement cross-site transfer system, and retrieval and transfer systems for Tanks 102-SY and 101-SY. This alternative includes retrieval and dilution of Tank 101-SY and transfer of the waste to one or both new tanks to mitigate its flammable gas safety issue, removal of sludge and residual supernatant waste from Tank 102-SY, and transfer of salt well liquids from the single-shell tanks and facility waste from the 200 West Area to available existing double shell tank space in the 200 East Area. The existing cross site transfer system would be utilized until the replacement system is operational. The operation of the transfer systems would be similar to the method described in the preferred alternative.

No Action Alternative - The no action alternative consists of continued retrieval of salt well liquids from 200 West Area single-shell tanks and transfer of West Area facility waste streams from the 200 West Area to available existing double-shell tank space in the 200 East Area. The waste streams and salt well liquids would be transferred to the extent possible utilizing the existing cross-site transfer system capability via Tank 102-SY. In addition, operation of the existing mixer pump in Tank 101-SY would continue to mitigate its flammable gas safety issue.

PROPONENT: U.S. Department of Energy

RESPONSIBLE OFFICIALS AND AGENCIES: Lead Federal Agency: John Wagoner of the U.S. Department of Energy; Lead State Agency: Mike Wilson of the Washington State Department of Ecology

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APPENDIX D

MITIGATION FOR LOST HABITAT

This appendix addresses the proposed mitigation strategy and its relationship to the site-wide mitigation program. Actions proposed as part of the alternatives would require clearing shrub-steppe habitat to construct new facilities. The part of that habitat dominated by mature sagebrush has been designated as a priority habitat by the State of Washington because of its importance to wildlife and because it is becoming relatively scarce in the state. Therefore, the loss of substantial acreage of this habitat type is an issue of concern for any alternative. Compensatory mitigation for unavoidable losses of this habitat, in the form of restored, enhanced, or newly established similar habitat, is planned.

The following sections discuss mitigation strategy in general, mitigation strategy for the Hanford site, and mitigation plans for the preferred alternative.

D.1 MITIGATION STRATEGY

Such a mitigation requirement assumes that the restoration of sagebrush habitat or creation of favorable conditions for it on disturbed sites is feasible. Revegetation projects (including some on the Hanford Site) have successfully planted and established sagebrush. The possible approaches to mitigation range from seeding to planting nursery stock to transplanting mature shrubs. While each strategy has its advantages, each also has disadvantages. Seeding is the cheapest method for revegetating barren soil, but the length of time to achieve mature sagebrush is likely to be years, even decades. There are also many factors that can interfere with the success of a seeding effort, and some sites are less amenable to this approach than others.

Planting nursery stock offers several advantages, including a higher likelihood of success, adaptability to a wide range of sites, and a slightly shorter time from planting to maturity than seeding. The costs are higher, and it may be necessary or desirable to establish a nursery nearby to optimize survival and use local genetic stock. Transplanting mature or near-mature

plants from sites scheduled for construction would probably be the most expensive on a unit basis, and the techniques may be least proven; but the rewards could be substantial. Using this transplanting approach, it should be possible to establish habitat for wildlife species that require mature shrubs as a key component of the habitat. Transplanting would avoid the gap between the time of habitat loss and the time when replacement habitat is useable by a species of concern for which it is critical such as the loggerhead shrike.

D.2 HANFORD SITE MITIGATION STRATEGY

A Hanford site-wide mitigation strategy is being discussed by representatives of the DOE, their contractors, the WDFW, the USFWS, and other members of the Natural Resource Trustees Council. The development of the strategy is in a formative stage, with concepts and procedures for agreements being the initial focus.

Under a site-wide mitigation strategy, there should be a substantial savings of time to all parties because the negotiations of mitigation details could be done once, rather than repeatedly for each separate project. The results should be more predictable and success more readily achievable, because each project would contribute an increment to a comprehensive study of the critical information needed to assure success rather than have to rely on a more limited study that would be economically feasible for one project. The site-wide strategy would also facilitate a broader landscape and ecosystem approach to mitigation than would be expected with separate project mitigation. Perhaps the most significant benefit would be to the habitat and the species that use it, because efforts would be focused on creating, enhancing, or revegetating habitat rather than on negotiations.

D.3 MITIGATION PLANS FOR THE PREFERRED ALTERNATIVE

Since a site-wide mitigation strategy has not yet been adopted and implemented, the mitigation for the clearing of mature sagebrush habitat for the RCSTS would necessarily be a stand-alone program. The concepts, developed more fully in the MAP, generally follow the mitigation approach described in the Draft EIS and apply the key elements of the draft site-wide mitigation strategy. The following are key components of the mitigation strategy:

- Avoidance and minimization of impact through siting
- Salvage and transplant
- Restoration of temporarily disturbed habitat
- Compensation for lost habitat.

Each of these components are discussed in the following paragraphs.

Measures to avoid and minimize impacts have been applied to the extent feasible. The anticipated loss of mature sagebrush has been reduced substantially since the Draft EIS was published. The construction corridor for the RCSTS would incorporate previously cleared roadways to reduce the width of the construction corridor from a nominal 30.5 m (100 ft) to 26 m (85 ft). Another means of minimizing the impact is that mature shrubs would be salvaged from the area to be cleared and planted in the enhancement area.

Restoration of temporarily disturbed habitat could be an important feature of the mitigation program. It is anticipated that an average of 23 m (75 ft) of the RCSTS construction corridor could be restored, if there will be no need for further disturbance associated with the use of the RCSTS. However, if decommissioning of the RCSTS required removal of the pipes, the area would be disturbed again at the end of the useful life of the facility. About 8 ha (20 acres) of cleared sagebrush habitat could be restored in place and provide good potential habitat if the pipes can be left in place when decommissioned. In addition, about 0.6 ha (1.5 acres) of the corridor, now occupied by cheatgrass/rabbitbrush habitat, could be planted with sagebrush. The remainder must be kept clear of vegetation to prevent deep-rooted shrubs from drawing up contaminated material in the unlikely event a leak should occur. Since it is assumed that decommissioning of the RCSTS would require pipe removal, the method of restoration would be to add sagebrush seeds to a seed mixture of native grasses that would be sown on the disturbed areas. This combination will help prevent invasive plant species from excluding desirable native species. If tanks are built as part of the new storage alternative, some of the area disturbed for construction could also be similarly restored.

Compensation for lost habitat values would be accomplished by enhancing the habitat value of an area west of the 200 West Area (see Figure 5-2) that has had no sagebrush component for many years due to past fires, but has the other

components of a mature habitat (e.g., understory species). A baseline characterization of the proposed compensation area is included in the MAP. The compensation site area has also been surveyed for cultural resources to make sure the mitigation action would not affect cultural resources. Enhancement would be through restoration of the shrubs in a selected area of habitat. Compensation for lost habitat value (for up to 50 years) is to be done at a ratio of 3 ha (7.4 acres) of replacement for each 1 ha (2.5 acres) lost.

Under the preferred alternative, 9 ha (23 acres) of mature sagebrush would be lost initially. As described in Section 5, at a ratio of 3:1, 28 ha (69 acres) would be replaced for this project. Of that, 9 ha (23 acres) would have mature sagebrush plants transplanted from the RCSTS corridor (salvaged prior to clearing of the corridor). These transplants would be placed at a density of 50 per ha (20 per acre) and will be supplemented with tubeling nursery stock at a density of 500 per ha (200 per acre). The remaining 18 ha (46 acres) would be planted with tubelings at a density of 750 per ha (300 per acre). If the new storage alternative is selected, the compensation would be done at the same ratio by expanding the proposed compensation area.

To assure that the concerns of tribes and natural resource agencies are considered, the detailed mitigation plans for inclusion in the MAP are being prepared in consultation with interested members of the Natural Resource Trustees Council. Since potentially significant cultural resource sites have been identified in the 560 ha (1,300 acre), a specific plan for avoidance of these sites will be included in the MAP. Procedures to follow in the event of encountering other cultural resource sites will also be specified. Tribes and natural resource agencies will be given the opportunity to participate in mitigation activities to make sure that their concerns are adequately considered during implementation of the MAP.