ENGINEERING CHANGE NOTICE

Page 1 of 21. ECN 634642
Proj.
ECN

2. ECN Category (mark one) Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Standby ☐ Supersede ☐ Cancel/Void ☐	3. Originator's Name, Organization, MSIN, and Telephone No. Nina M. Menard, Environmental Services, H6-24, 372-3627	4. USQ Required? ☐ Yes ☒ No	5. Date Sept. 27, 1996
	6. Project Title/No./Work Order No. Hanford Site Stormwater Pollution Prevention Plan	7. Bldg./Sys./Fac. No. N/A	8. Approval Designator N/A
	9. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-EN-EV-021, REV. 0	10. Related ECN No(s). N/A	11. Related PO No. N/A
12a. Modification Work ☐ Yes (fill out Blk. 12b) ☒ No (NA Blks. 12b, 12c, 12d)	12b. Work Package No. N/A	12c. Modification Work Complete N/A Design Authority/Cog. Engineer Signature & Date	12d. Restored to Original Condition (Temp. or Standby ECN only) N/A Design Authority/Cog. Engineer Signature & Date
13a. Description of Change This ECN is to revise the Hanford Site Stormwater Pollution Prevention Plan to reflect changes in the stormwater outfalls on the Hanford Site that discharge to the Columbia River. This update is required by NPDES Permit No. WA-R-00-000F.			
13b. Design Baseline Document? ☐ Yes ☒ No			
14a. Justification (mark one) Criteria Change ☐ Design Improvement ☐ Environmental ☒ Facility Deactivation ☐ As-Found ☐ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐			
14b. Justification Details Update to the Hanford Site Stormwater Pollution Prevention Plan as required by NPDES Permit No. WA-R-00-000F.			
15. Distribution (include name, MSIN, and no. of copies) See Attached Sheet.			

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634642

A-7900-013-3 (05/96) GEF096

Hanford Site Stormwater Pollution Prevention Plan

Nina M. Menard

Westinghouse Hanford Company, Richland, WA 99352
U.S. Department of Energy Contract DE-AC06-87RL10930

EDT/ECN: 634642 UC: 2000
Org Code: 01842 Charge Code: R1015
B&R Code: EW3110010 Total Pages: -136- 135 *gs*

Key Words: Stormwater, Stormwater Pollution Prevention Plan, Hanford Site Stormwater Pollution Prevention Plan, Storm Water, SWPPP, NPDES, Outfalls, Stormwater Outfalls.

Abstract: This ECN is to replace and update the Hanford Site Stormwater Pollution Prevention Plan as required by NPDES Permit No. WA-R-10-000F.

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Nina M. Menard 1-10-97
Release Approval Date

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WHC-SD-EN-EV-021

Revision 1

Hanford Site Stormwater Pollution Prevention Plan

HANFORD SITE STORMWATER POLLUTION PREVENTION PLAN

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

RNK

James E. Rasmussen
James E. Rasmussen, Director

Environmental Assurance, Permits
and Policy Division
U.S. Department of Energy
Richland Operations Office

9/24/96
Date

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- B - Outfall Description Tables
- C - Hanford Site List of Significant Spills and Leaks
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- F - Stormwater General Permit Coverage Notice
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ACRONYMS

BMP	best management practice
CERCLA 1980	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CWA	Clean Water Act
DOE	U.S. Department of Energy
DOE-RL	U.S. Department of Energy-Richland Operations Office
EPA	U.S. Environmental Protection Agency
ERDA	Energy Research and Development Agency
FR	Federal Register
FWPCA	Federal Water Pollution Control Act
ICF KH	ICF Kaiser Hanford Company
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
PPT	Pollution Prevention Team
PNL	Pacific Northwest Laboratories
RCRA	Resource Conservation and Recovery Act of 1976
SIC	Standard Industrial Classification
SWCSCE	Storm Water Comprehensive Site Compliance Evaluations
SWPPP	Storm Water Pollution Prevention Plan
WHC	Westinghouse Hanford Company

1.0 INTRODUCTION

1.1 PURPOSE OF THE STORMWATER POLLUTION PREVENTION PLAN

The Hanford Site has numerous facility areas within its boundary which conduct certain industrial activities subject to federal National Pollutant Discharge Elimination System (NPDES) industrial stormwater discharge permit regulations under the jurisdiction of the U.S. Environmental Protection Agency (EPA) [Federal Register (FR) 1990 and 1992; Code of Federal Regulations (CFR) 1991]. The regulations govern the control of pollutants in "stormwater associated with industrial activity." As defined in the regulations (CFR 1991), "stormwater associated with industrial activity" means the point source discharge of stormwater runoff from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial facility. Categories of industrial facilities within the Hanford Site subject to the NPDES industrial stormwater regulations include:

- Facilities with Standard Industrial Classification (SIC) code 28 for chemical and allied products; SIC code 37 for transportation equipment; and SIC code 41 for local and suburban transit and interurban highway and passenger transportation;
- Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;
- Landfills, land application sites, and open dumps (active, inactive, or closed) that receive or have received industrial wastes and that are subject to regulation under Subtitle D of RCRA;
- Steam electrical power generating facilities, including coal handling sites;
- Certain transportation facilities which have vehicle maintenance shops and equipment cleaning operations; and
- Construction activities including clearing, grading, and excavation activities involving five acres or more in land area.

To initiate compliance with the NPDES industrial stormwater discharge permit regulations, the DOE initiated actions to obtain site coverage under an NPDES General Permit, which involved the following steps:

- Filing a Notice of Intent (NOI) application to obtain coverage under an NPDES general permit for stormwater discharges associated with industrial activity. NPDES industrial stormwater discharge permit regulations have stipulated that an industrial facility subject to regulation and commencing operations prior to October 1, 1992, must submit an NOI application to the EPA on or before October 1, 1992. The DOE filed a NOI application with the EPA on October 1, 1992 to obtain coverage under NPDES General Permit No. WA-R-00-000F. This general permit was issued by EPA on September 9, 1992 for owners and operators of federal facilities in Washington State engaged in discharging

stormwater associated with industrial activities (FR 1992). September 9, 1992 is considered the effective issuance date of NPDES General Permit No. WA-R-00-000F. This general permit expires on September 9, 1997. On February 14, 1994, EPA issued coverage notice and assigned WA-R-00-A17F as the Hanford Site's NPDES stormwater permit number. The Stormwater General Permit Coverage Notice for the Hanford Site is included in Appendix F.

- Development and implementation of an industrial stormwater pollution prevention plan (SWPPP). NPDES industrial stormwater discharge permit regulations (CFR 1991 and FR 1992) have stipulated that an industrial facility subject to regulation and in operation on or before October 1, 1992 must develop a SWPPP by April 1, 1993, and provide for implementation and compliance with the terms of the SWPPP on or before October 1, 1993.

The Hanford Site Stormwater Pollution Prevention Plan (SWPPP) (WHC, 1993) was certified by J.D. Wagoner, Manager, DOE-RL, on April 1, 1993, in compliance with the general permit. After April 1, 1993 the SWPPP was reviewed and evaluated by a site wide pollution prevention team to implement the SWPPP by October 1, 1993 (see Sections 3.2, 3.10, and 3.11). As required by General Permit No. WA-R-00-000F (WA-R-00-A17F) Section IV, Part D, Section 4.c, an annual report must be developed by RL and retained on site to verify that requirements listed in General Permit WA-R-00-000F (WA-R-00-A17F) are being implemented. The Hanford Site Stormwater Comprehensive Site Compliance Evaluation Report (WHC 1994, 1995) fulfills this requirement and contains the results of inspections of the storm water outfalls listed in the SWPPP (WHC 1993). If an industrial facility located within a Hanford Site facility area uses and/or stores federal Emergency Planning and Community Right-to-Know Act (EPCRA) Section 313 water priority chemicals after April 1, 1993, then the SWPPP for such a facility must be reviewed, evaluated and certified by a Registered Professional Engineer in order to incorporate SWPPP modifications addressing special NPDES General Permit requirements for monitoring, reporting, training, and preventive maintenance practices at EPCRA 313 facilities. (EPCRA Recertification must take place every three years thereafter, or as soon as possible after significant modifications are made to a facility or facilities within the Hanford Site.) An EPCRA review has been completed (see Section 3.4). As required, copies of this SWPPP are maintained on-site, and are available for review by the EPA.

A Hanford Site SWPPP for construction activities has not been included in this document since these activities are addressed separately from industrial activities under NPDES industrial stormwater discharge permit regulations. Separate and specific guidance for developing and implementing SWPPPs for construction activities has been prepared by EPA.

This revision of the SWPPP addresses all potential pollution to the Columbia and Yakima Rivers that might occur as a result of stormwater runoff, as identified during initial site field surveys conducted in February and March of 1993 and the annual surveys conducted in 1994 and 1995. The annual surveys referred to as Storm Water Comprehensive Site Compliance Evaluations (SWCSEs) are documented in WHC (1994, 1995) and were used to update this revision of the SWPPP. Continued operation of the Hanford Site will require periodic revisions to the SWPPP by the site pollution prevention team(s). The SWPPP must be updated and modified periodically in order for the Hanford Site to remain current and in compliance with the regulatory requirements.

1.2 BACKGROUND

1.2.1 Historical Overview of Hanford Site Industrial Activities

In 1943, the U.S. Department of the Army, Corps of Engineers constructed the world's first plutonium production nuclear reactor (the 100-B reactor) on the Hanford Site, an area of about 560 square miles of arid, desert land in southeastern Washington State (Figure 1). By April 1945, the Hanford Site began to diversify its industrial activities by housing three more single-purpose (plutonium production) nuclear reactors (the 100 Areas), and other facilities for the entire nuclear cycle, including nuclear fuel fabrication facilities (the 300 Area), three chemical processing plants (the 200 Areas), five coal-fired electrical powerplants, and other support facilities. By the 1950's, eight single-purpose, nuclear reactors had been built in the 100 Areas, and were producing plutonium. N-Reactor began weapon materials production in 1963. By 1964, a total of nine nuclear reactors were operating at the Hanford Site. The eight single-purpose, plutonium production reactors were shut down between 1964 and 1971. The production of new plutonium stopped at the Hanford Site in 1987 when the dual-purpose, 100-N reactor was shut down (DOE 1991).

By 1975, energy research had become the major focus at the Hanford Site. The future use of such energy sources as nuclear, solar, geothermal, fossil, wind, and organic waste were investigated. In the early 1980's, the role of the Hanford Site re-emphasized defense chemical processing and waste management activities. Since 1989, the focus of the Hanford Site has shifted again to address the cleanup and remediation of its nuclear and chemical wastes. In May 1989, DOE, EPA, and the Washington State Department of Ecology (Ecology) signed the *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1991), the Site's cleanup blueprint. The Agreement as subsequently revised lays out a 30-year timetable to achieve one of the largest environmental restoration projects in history. *The Environmental Restoration and Waste Management Site-Specific Plan for the Richland Operations Office - Hanford Site Five-Year Plan Fiscal Years 1993-1997* (DOE-RL 1991) supports and goes beyond the Agreement. The plan outlines waste cleanup activities proposed for the Hanford Site through the 1997 fiscal year and is updated annually.

The Hanford Site facilities were operated by the U.S. Atomic Energy Commission from 1947 to 1974 and by its successors, the U.S. Energy Research and Development Administration (ERDA) from 1974 to 1977, and the DOE since 1977 (DOE 1991).

1.2.2 Regulatory Background of Stormwater Discharge

The 1972 amendments to the federal Water Pollution Control Act (FWPCA) prohibit the point source discharge of any pollutant to a surface water body unless the discharge is authorized by an NPDES permit. An NPDES permit specifies monitoring, reporting and control requirements, including control on limits of pollutants in discharges. In 40 CFR Part 122.2 (CFR 1991), a point source is defined as any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged. The term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

Historically, NPDES permits have focused on regulating point source discharges of:

- Industrial process and municipal wastewater treatment plant effluent, and

- Stormwater runoff from certain industrial categories with stormwater effluent limitations identified in 40 CFR, Parts 400-471 (Subchapter N).

However, as pollution control measures were installed for these types of discharges, it was becoming more evident that more non-point, diffuse sources (occurring over a wide area) of water pollution were also major causes of water quality problems. Historically, stormwater runoff (rainfall and snow melt runoff) has been considered only to be diffuse, or non-point source pollution (Berman et al. 1991). Nevertheless, as stormwater runoff drains from streets, parking lots, industrial and construction sites, and mining, logging, and agricultural areas, pollutants are discharged by gravity flow through a variety of natural or man-made conveyances, which have been considered point sources under the CWA. As stormwater runoff discharges into a variety of drainage facilities, i.e., detention/retention basins, it may scour accumulated pollutants along its path. The polluted runoff often ends up in surface water bodies such as creeks, streams, rivers, lakes, estuaries, bays, and oceans.

In 1987, the CWA was amended [by adding Section 402(p)] to establish phased NPDES industrial stormwater discharge permit application requirements. A 1990 National Water Quality Inventory Report to Congress, based on biennial reports submitted by the States under Section 305(b) of the CWA, indicated that roughly 30 percent of identified cases of water quality impairment to waters are attributed to point source discharges of stormwater runoff. Moreover, studies have shown that stormwater runoff from urban and industrial areas typically contains significant quantities of the same general types of pollutants that are found in industrial process and wastewater treatment plant effluent, causing similar adverse impacts to both the ecological and human health environments. Thus, recognizing the adverse impacts of point source discharges of stormwater runoff into our nation's surface water bodies, the EPA issued regulations on November 16, 1990 (FR 1990 and CFR 1991) establishing initial NPDES permit application requirements for stormwater discharges associated with certain industrial activities, and municipal separate storm sewer systems serving populations of 100,000 or more.

Important updates for NPDES industrial stormwater discharge permitting regulations were issued by EPA on September 9, 1992, whereby NPDES General Permits for industrial activities were promulgated for 12 states and 6 territories without authorized NPDES permit programs (FR 1992). As mentioned in Section 1.1, NPDES General Permit No. WA-R-00-000F was issued by EPA on September 9, 1992 for federal facilities located in Washington State. In order to have the Hanford Site comply with and obtain coverage under this NPDES General Permit, the DOE was required to file an NOI application, and develop and implement a SWPPP, as previously discussed in Section 1.1.

1.3 ORGANIZATION OF DOCUMENT

This SWPPP is divided into 3 primary sections with supplementary appendices:

- Section 1.0, "Introduction," describes the purpose and regulatory background for the SWPPP.
- Section 2.0, "Methodology," presents the approach to developing the SWPPP, including a description of the site drainage evaluation and site surveys.
- Section 3.0, "Stormwater Pollution Prevention Plan Description," presents the various sitewide components of the SWPPP.
- Section 4.0, "References," lists the references cited in this SWPPP.
- Appendix A includes the Stormwater Outfall Maps.
- Appendix B contains the Individual Outfall Descriptions and Current Status.
- Appendix C contains the Hanford Site List of Significant Spills and Leaks.
- Appendix D contains the "Status Report on Implementation of Hanford Site SWPPP".
- Appendix E contains Justifications for Outfall Elimination from the SWPPP.
- Appendix F contains the Stormwater General Permit Coverage Notice.

2.0 METHODOLOGY

2.1 OVERVIEW

The methodology employed to develop the baseline site-wide SWPPP (WHC 1993) first required the identification of industrial facilities within the Hanford Site that could potentially discharge pollution to the Columbia or Yakima Rivers via stormwater runoff. This initial phase included an evaluation of site-wide and area-specific topographic maps to determine regional drainage patterns and identify those industrial facilities within the Hanford Site from which surface drainage could reach the Columbia or Yakima Rivers. Once these facilities were identified, field surveys were initiated for each facility.

The field surveys were conducted initially to identify all potential discharge points or outfalls to the Columbia River. The Yakima River was excluded from further consideration since industrial stormwater runoff cannot reach it (see Section 2.2.1). The potential discharge points and/or outfalls included point source conveyances such as drainpipes, culverts, exposed ditches, and industrially-related topographic depressions. Once the conveyances were identified, additional "walkdowns" were conducted to determine the potential surface drainage area to those conveyances and to identify any potential pollution sources or high-risk waste generating areas or activities that could potentially come into contact with stormwater runoff.

If potential pollution sources were identified, the site was further assessed to determine if any existing structural Best Management Practices (BMPs) were in place, such as flow diversion structures, retention/detention ponds, vegetative swales, berms, or sediment traps. The individual sites were further assessed for evidence of spills or leaks, the degree to which the pollution sources were exposed to the elements, compatibility of existing storage or containment, potential for exposure to runoff, and general housekeeping. Photographs were taken for documentation purposes, and all data were recorded on field survey sheets. Wherever possible, engineering and topographic data were checked to verify field observations. The data were then used to develop area-specific data packages, and BMPs.

In conjunction with the field surveys, a database and literature search was conducted to develop supporting background data required for the SWPPP. This supporting data included materials inventories, spill control plans, records of previous spills and leaks, and any existing stormwater discharge sampling data for the facilities of concern. The quality and quantity of available data varied, depending on the type of data and the facility. Wherever appropriate data were available, they were incorporated into the data package for each respective facility. Representative data sources for both site-wide and facility-specific data include the *1991 Tier Two Emergency and Hazardous Chemical Inventory* (DOE-RL 1992), the *WHC Effluent Report for 300, 400, and 1100 Area Operations for Calendar Year 1989* (WHC 1990), the *Environmental Compliance Manual* (WHC 1991), and various chemical spill control plans for the 300 Area (Duffield 1991), the 100 Areas (Chien 1989), the 400 Area (McKarns 1991), the 700 Area (Haggard 1992a), the 1100 Area (Haggard 1991), and the 300 Area (Haggard 1992b).

2.2 SITE EVALUATION

The following sections describe the process by which those sites with the potential to discharge pollution to the Columbia River via stormwater runoff were identified and evaluated in the baseline SWPPP (WHC 1993) and it describes changes in status of individual outfalls for each area based upon annual SWCSCEs that were conducted in 1994 and 1995 and for this revision to the SWPPP.

2.2.1 Site Drainage

The primary goal of the SWPPP, as described earlier in Section 1, is to identify potential sources of pollution at each industrial facility within the Hanford Site that could be conveyed to the Columbia or Yakima Rivers by stormwater runoff and associated conveyance systems, and to determine BMPs to prevent this pollution from entering a river. To accomplish this, it was first necessary to define the surface drainage of the site in order to identify areas with the potential to convey stormwater runoff to the Columbia or Yakima Rivers.

Figure 1 (see pocket) is a site-wide topographic map with a 6-m (20-ft) contour interval. This figure illustrates the primary features which control regional surface drainage on the Hanford Site. These primary features include the Rattlesnake Hills, the Cold Creek Valley, and Gable Mountain. The Hanford Site 200 Areas are located on a central plateau located between the Rattlesnake Hills and Gable Mountain, just northeast of the Cold Creek Valley. Regional surface drainage from the 200 Areas is to the Cold Creek Valley to the southwest (indicated by the dark line on the eastern margin of the Cold Creek Valley), and to the west and southeast from Gable Mountain. North of the drainage boundary formed by Gable Mountain (also indicated by a dark line), all regional surface drainage is northwest to northeast towards the Columbia River. However, there are no industrial facilities situated between the 100 Areas and Gable Mountain. All regional surface drainage along the eastern margin of the site is generally towards the Columbia River.

Facilities within the 200 Areas are either below grade, terraced and surrounded by berms and ditches, or a combination of these features. Both 200 Areas were observed to have perimeter roads that have substantial ditches on either side of the roads. These ditches, combined with the below grade and bermed features prevent stormwater runoff from exiting the areas and entering the Cold Creek floodplain boundary to the southwest, even in the event of the 100 year flood (DOE 1987). Since the Cold Creek Valley would be the most direct drainage pathway to the Yakima River, it is therefore unlikely that stormwater run-off would ever reach this river. As a result, the Yakima River was excluded from further consideration in the baseline SWPPP (WHC 1993).

The Hanford Site 400 Area is located on a large plain with broken terrain features and localized low spots such that runoff from an extreme precipitation event would be locally retained where it would infiltrate, and could not be conveyed far from the 400 Area perimeter.

Washington Public Power Supply System (WPPSS) facilities have been excluded from consideration, since they are currently permitted under WNP-2 NPDES Permit No. WA-002515-1, which was renewed on September 10, 1990 for five years. NPDES Permit No. WA-002515-1 was issued on October 9, 1995 by the Energy Facility Site Evaluation Council. Stormwater considerations for WPPSS facilities are addressed under this permit.

The Hanford Site 1100 and 3000 Areas were studied using the 1:500 and 1:50 scale "Topographic maps of the 1100-EM-1 Operable Unit", prepared by Degross Aerial Mapping (11-89). The topographic maps indicated that Stevens Drive is 3 to 4 feet higher in elevation than the 1100 Area and general drainage occurring from a maximum precipitation event would be contained between the railroad track berm and Stevens Drive. The drainage for the 1100 Area would be to the natural depression features just north and just south of the site, where it would be effectively contained within the 1100 Area. The 3000 Area drainage is generally to the north where a ditch intercepts and routes the flow to the east to a large depression east of the site. This feature drains to natural depressions to the south where run-off would be contained from further conveyance. Field checks also verified that no potential pollution sources or conveyances could be found along the Columbia River behind areas such as the Battelle Sigma V building. Access to Port of Benton facilities was not possible during the time the initial site surveys were conducted.

Finally, previous water balance studies (PNL 1989, 1990) at the Hanford Site have suggested that surface runoff is negligible and that surface conveyance for any significant distance does not occur. Even under an extreme precipitation event such as a heavy snow fall followed by a rapid melt on frozen soil, significant conveyance would be likely only on terrain with moderate slope. Since the majority of the facilities at the Hanford Site are all on flat, terraced, or very gentle sloped plateaus, no runoff would be expected to reach the Columbia River from these areas, except for those facilities adjacent to the Columbia River.

The results of this evaluation indicate that the only industrial facility areas on the Hanford Site with the potential for stormwater run-off to reach either river are the seven facility areas adjacent to the Columbia River. These include 100-B and 100-C, 100-K, 100-N, 100-D and 100-DR, 100-H, 100-F and the 300 Areas. The following sections provide general overviews of each area based on the initial site surveys and status changes in each area due to the Pollution Prevention Team's SWCSCEs and this update to the SWPPP. Specific status changes include elimination of NPDES process outfalls previously included in the SWPPP because they are non-stormwater discharges (Appendix E). Currently, two industrial process NPDES Permits exist for industrial type discharges from the Hanford Site. NPDES Permit No. WA-000374-3 was issued in 1981 and remains in effect. This permit authorizes discharges from eight outfalls located in the 100 and 300 Areas. NPDES Permit WA-002591-7 authorizes discharges from the 300 Area Treated Effluent Disposal Facility and was issued in October 1994. Additional detailed data for each area is provided in Appendices A and B. For each area, individual discharge locations have letters assigned to them and each potential point source conveyance has a specific number assigned to it. These letter/number distinctions are referenced in Appendices A and B.

2.2.2 General Field Survey Findings

Initial field surveys of Hanford Site facility areas were conducted during February-March, 1993, with several trips made to each area. The surveys covered the shorelines, embankments, and terraces at each area to determine if a potential to convey stormwater runoff existed. These surveys were designed to determine general discharge locations to the river, potential point source conveyances, drainage basins, and pollutant sources associated with those basins at each of the areas identified in the previous section.

In general, the ground cover in each area can be characterized according to four categories. These are gravel, riprap, river rock, and natural vegetation. In virtually all cases, the gravel appeared to have been brought in and levelled over an area. In several cases, it was apparent that riprap had been brought in and placed in channels leading to the river. Generally,

river rock covered the upper portion of the river embankment and natural vegetation covered the lower portion. The natural vegetation consisted of desert grasses, sagebrush, and small bushes. As noted, small trees were present at some outfall locations.

General topographic characteristics along the riverbank were consistent between the areas. The ground near the river's edge was typically flat (estimated 0 to 5% grade). The lower portion of the embankment was usually gently sloped (estimated 5 to 20% grade) to moderately sloped (20 to 35% grade). The upper portion of the embankment was usually moderately sloped to steeply sloped (> 35% grade). A terrace above the embankment was usually sloped gently toward the river.

As discussed in Section 1.1 a storm water Pollution Prevention Team (PPT) was organized as required by the Permit to study the identified outfalls and determine their appropriate disposition under storm water rules. The PPT performed the SWCSCEs which included researching the potential outfalls, identifying those that could actually be outfalls and inspecting them in the field annually. This information is incorporated into the following site specific sections.

2.2.3 100-B and 100-C Area Field Survey Findings

Five potential point source conveyances to the river were noted during the initial walkdown assessment. These conveyances include three runoff areas, a flume, and a pipe.

The PPT annual SWCSCEs indicate the pipe listed above was previously used for discharge of unused process wastewater, and does not receive stormwater. This point source conveyance will be eliminated from future SWCSCEs. None of the conveyances in the 100-B and 100-C Areas are permitted under NPDES Permit No. WA-000374-3. The location of the point source conveyances are identified in the outfall location maps in Appendix A with additional details and status provided in the description tables in Appendix B.

2.2.4 100-D and 100-DR Area Field Survey Findings

Three potential point source conveyances were noted during the initial walkdown assessment. These conveyances include two flumes and a runoff area near Building 181-D, which were further described in Appendix A of the baseline SWPPP (WHC 1993). None of the conveyances in the 100-D and 100-DR Areas are permitted under NPDES Permit No. WA-000374-3.

These discharge locations will continue to be monitored on an annual basis by the PPT. The location of the point source conveyances are identified in the outfall location maps in Appendix A with additional details and status provided in the description tables in Appendix B.

2.2.5 100-F Area Field Survey Findings

Fifteen potential point source conveyances were identified during the initial site surveys. These conveyances included five pipes and two flumes. The remaining conveyances were identified based on the presence of four areas with drums, a burial mound, trench, storage area with drums, miscellaneous concrete blocks, and piping materials. These conveyances are described in more detail in Appendix A of the baseline SWPPP (WHC 1993). None of the conveyances in the 100-F Area are permitted under NPDES Permit No. WA-000374-3.

Four of the fifteen point source conveyances that were identified during the initial field survey have been eliminated from the SWPPP. All four were determined by the PPT to not conduct stormwater to the Columbia River. Appendix E contains the justifications for their elimination from the SWPPP. The location of the point source conveyances are identified in the outfall location maps in Appendix A with additional details and status provided in the description tables in Appendix B.

2.2.6 100-H Area Field Survey Findings

Thirteen potential point source conveyances were identified during the initial field surveys. These conveyances included nine pipes and two areas of runoff over riprap. The remaining conveyances were an erosion area around a concrete headwall, and the slope below some miscellaneous wood and rusty metal rubble on the riverbank. These conveyances are described in more detail in Appendix A of the baseline SWPPP (WHC 1993). None of the conveyances in the 100-H Area are permitted under NPDES Permit No. WA-000374-3.

Three of the thirteen point source conveyances that were identified during the initial field survey have been eliminated from the SWPPP. Two are river stage recorders and do not conduct storm water runoff and one is a pipe leading from a monitoring well. The location of the point source conveyances are identified in the outfall location maps in Appendix A with additional details and status provided in the description tables in Appendix B.

2.2.7 100-K Area Field Survey Findings

Walkdowns covered areas west of the 100-K Area and access roads adjacent to the 107-K retention basins and 181-K pump houses. Additional walkdowns reassessed potential outfalls near the 107-K and 181-K structures.

Terrain in the 100-K areas consisted of several identifiable areas:

- Floodplains were identified from west of the 181-KW pumphouse to east of the 181-KE pumphouse. This area consisted of sand, gravel, and cobbles. The area generally consisted of terraces parallel to the river which ran the length of the 100-K Area except where they were broken by the two 181-K access roads. The terraces were each approximately 50 m (164 ft) wide (perpendicular to the river) and were separated by steep transitions of approximately 3 m (10 ft). The overall width of this area ranged from 120 m (394 ft) west of 181-KW to 200 m (656 ft) east of 181-KE.
- Access roads separated the floodplains into three sections. The roads included a major east-to-west road that separated the floodplain area from the 107-K water retention basin runoff areas, and two access roads that ran north-south to the end of the 181-K pumphouses. The access roads were all raised above adjacent natural elevations and consist of asphalt or compacted sand and gravel.
- Process areas were present in the 100-K Area including 107-K retention basins, adjacent runoff retention areas near the basins, and the remaining area between the 107-K structures. These areas generally consist of sand, gravel and cobbles and were slightly sloped towards the river, except for the runoff retention areas surrounding the 107-K basins. These areas

would drain to the floodplains by culverts passing under the adjacent access roads.

Except for the access roads, the floodplain immediately west of 100-KW, the shoreline within about 5 m (15 ft) of the river, and areas west of 107-KW, all areas discussed here were under radiological control and posted as surface contamination areas. Housekeeping throughout the 100-K Area appeared adequate. The 100-K reactors are retired; however, the fuel storage basins within the reactor buildings continue to operate for fuel storage purposes.

Fourteen potential point source conveyances were identified during the initial 100-K Area field surveys. All pipes and culverts (capped and uncapped), and any major erosion points that drained directly to the river or to any portion of the riverbank, were considered as potential outfalls. These conveyances, their current operational status and possible pollution sources are described in Appendix A of the baseline SWPPP (WHC 1993). Six of the 14 conveyances drained to floodplains at 90 m (300 ft) or greater distance from the river. One conveyance drained to the shoreline approximately 12 m (40 ft) from the river. Three conveyances drained through pipes directly to the river. The remaining four conveyances were pipes that were located on the 181-K pumphouse access roads. One conveyance (labeled outfall 003) is permitted under NPDES Permit No. WA-000374-3.

Of the initial fourteen potential point source conveyances identified, six were determined by the stormwater PPT to either not convey stormwater discharges or permitted under a separate NPDES permit and they have been eliminated from the SWPPP. The location of the point source conveyances are identified in the outfall location maps in Appendix A with additional details and status provided in the description tables in Appendix B.

2.2.8 100-N Area Field Survey Findings

Initial field survey areas included the main 100-N complex (excluding reactor exclusion areas), roads east of the complex towards the river, and the shoreline east of building 181-N. Depending upon the slope of the terrain and characteristics of the ground cover, the assessment included structures, facilities, and materials adjacent to the river.

The ground cover in the 100-N Area can be characterized according to five categories. These are concrete/asphalt, gravel, riprap, river rock and natural vegetation. In virtually all cases, the gravel appeared to have been brought in and levelled over an area. In several cases, it was apparent that riprap had been brought in and placed in channels leading to the river. Generally, river rock covered the upper portion of the river embankment and natural vegetation covered the lower portion. The natural vegetation consisted of desert grasses, sagebrush, and small bushes. Small trees were present at some outfall locations.

The 100-N site is graded with multiple terraces. The gentle slopes of each terrace are flat (estimated 0 to 5% grade) and are separated by steeper slopes (estimated 30 to 45% grade) at the transitions between terraces. This terrace system achieves good containment of potential runoff for most of the 100-N Area. The transition portions of the terrain, however, allow for rapid runoff and potential transport of potential contamination sources. All of the potential contamination sources identified in the walkdown were located on or adjacent to a transition slope.

Twenty-seven potential point source conveyances were identified during the initial 100-N field surveys. All pipes and culverts (capped and uncapped), and all major erosion points which drained directly to the river or to any portion of the riverbank were considered as potential

conveyances. Additionally, the ditch north of 181-N (identified in WHC-S-0437 as the "Diesel Oil Interceptor Trench") was included as a conveyance since there is a potential for concentration from undefined runoff sources above the trench with subsequent leaching to the river. One of these conveyances (labeled outfall 007) is permitted under NPDES Permit No. WA-000374-3.

Historical and current engineering and topographic drawings of the 100-N complex were reviewed in an attempt to identify all pipes found in the survey. Twenty of the twenty-seven conveyances were identified. All twenty-seven conveyances and their status, including potential pollutant sources, were described in Appendix A of the baseline SWPPP (WHC 1993).

The stormwater PPT made significant progress at N-Area. By plant walk-downs, data searches and data confirmation all twenty-seven potential point source conveyances identified in the baseline SWPPP (WHC 1993) were determined not to be discharging to the river. Some point source from pipes were identified as non-operational and groundwater run-off was identified as not capable of reaching the river. Supporting documentation can be found in the Storm Water Pollution Prevention Plan for N Reactor Plant (Appendix D, Enclosure 3).

Although none of the point sources were determined to be discharging to the Columbia River, they had the potential to discharge in the future. Best Management Practices (BMPs) were applied where indicated in the baseline SWPPP (WHC 1993). In seven of the initial twenty-seven potential point source conveyances in the baseline SWPPP, BMPs were not identified. For these seven it was suggested that the source end conveyance should be identified to assess potential stormwater contamination and determination of applicable BMPs and monitoring requirements. All seven of these potential point source conveyances were determined to be pipes that were non-operational.

Eight of the original twenty-seven potential point source conveyances have been eliminated from the SWPPP. Justifications for their removal are included in Appendix E. The location of the point source conveyances are identified in the outfall location maps in Appendix A with additional details and status provided in the description tables in Appendix B.

2.2.9 300 Area Field Survey Findings

Ten potential point source conveyances were noted during the walkdown assessment. These conveyances included three areas of runoff, three pipes, two culverts, a half-pipe, and an area of erosion, which are described in more detail in Appendix A of the baseline SWPPP (WHC 1993). Two of the conveyances (outfalls 001 and 013) in the 300 Area are permitted under NPDES Permit Numbers WA-002591-7 and WA-000374-3, respectively.

Two of the ten potential point source conveyances initially identified have been eliminated from the SWPPP. One outfall was intended to be is permitted by an NPDES permit, which has since been canceled and the outfall is scheduled for removal in FY96. The other was determined by the PPT to not be a stormwater discharge location. Appendix E contains the justifications for their elimination from the SWPPP. The status for the remaining eight potential point source conveyances are shown in the outfall location maps in Appendix A and are described in more detail in the outfall description tables in Appendix B

3.0 STORMWATER POLLUTION PREVENTION PLAN DESCRIPTION

3.1 SWPPP OBJECTIVES

As stated previously, the Hanford Site SWPPP focuses on two major objectives to ensure compliance of each facility area within the Hanford Site with the terms and conditions of the NPDES General Permit.

- Identifying the sources of pollutants with the potential to affect the quality of point source discharges of stormwater runoff associated with industrial areas within the Hanford Site to the Columbia River, and
- Identifying BMPs that will be implemented to minimize and control pollutants in potential point source discharges of stormwater runoff associated with industrial areas within the Hanford Site.

Implementation of the Hanford Site SWPPP has and will continue to ensure that stormwater runoff discharged from a facility area to the surface environment does not contain contaminants that would be detrimental to the Columbia River. The Hanford Site SWPPP is comprised of area-specific data packages (Appendices A, B and C) for each industrial area that has the potential to introduce pollution to the river via stormwater runoff. The elements of the SWPPP are discussed in more detail in the following sections.

3.2 STORMWATER POLLUTION PREVENTION TEAM

The baseline SWPPP was reviewed and evaluated by a sitewide stormwater Pollution Prevention Team (PPT) prior to the October 1, 1993 deadline for implementation of the SWPPP. This PPT includes representatives of all affected operations contractors on site. As required by General Permit No. WA-R-00-000F (WA-R-00-A17F) Section IV, Part D, Section 4.c, an annual report must be developed by DOE-RL and retained on site to verify that the requirements listed in General Permit No. WA-R-00-000F (WA-R-00-A17F) are being implemented. The PPT has produced two annual reports to satisfy this requirement which contains the results of inspections of the stormwater outfalls listed in the baseline SWPPP (WHC 1993). These reports are titled Hanford Site Storm Water Comprehensive Site Compliance Evaluation Report (WHC 1994, 1995). The PPT has met regularly since May 1994 to conduct the SWCSCE as discussed previously in Section 1.1. PPT members in each area surveyed the storm water outfalls to determine the discharge status and provided an updated status of each outfall. The inspections (SWCSCEs) consisted of a visual inspection of each outfall and the surrounding area that drains to the outfalls for any sign of changes and/or erosion. Additional responsibilities of the PPT include maintaining, and revising the SWPPP, as necessary and identifying BMPs to control potential sources of pollution. The PPT is also responsible for identifying appropriate staff and providing training in areas of spill control, BMP implementation, record keeping, and inspection procedures. The PPT members are listed by name, facility area title/position, telephone number, and their particular responsibilities in each annual Hanford Site Storm Water Comprehensive Site Compliance Evaluation Report (WHC 1994, 1995). The list of team members is displayed or posted within each facility area so that other area personnel are aware who is responsible for stormwater management within the facility area.

The PPT is also responsible for insuring that spill prevention and response procedures are incorporate into each affect facility's spill control plan. Such procedures have already been

developed and presented in the various spill control plans developed for each of the areas on the Hanford Site. These plans can be modified, if necessary, to address stormwater pollution prevention.

Training guidelines are currently being developed that will facilitate the PPT's management of the SWPPP. Additional PPT responsibilities are discussed further in Sections 3.10 and 3.11.

3.3 SITE MAPS

Appendix A contains maps showing the following:

- Outline of drainage areas for each point-source conveyance documenting the flow direction and their general discharge locations to the Columbia River;
- Locations of potential pollution sources associated with the areas, including, but not limited to: maintenance areas, industrial waste management areas (landfills, waste piles, treatment facilities, disposal areas); outside storage areas for raw materials and by-products, surface contamination areas, and any other industrial areas of concern that could come into contact with stormwater runoff.

3.4 INVENTORY OF SIGNIFICANT MATERIALS EXPOSED TO STORMWATER

NPDES industrial stormwater discharge permit regulations (CFR 1991 and FR 1992) require the SWPPP to contain an inventory of the "significant materials" that are handled, stored, or processed on-site, and that have been exposed to stormwater runoff in the past three years from the effective issuance data of the NPDES General Permit. Under 40 CFR 122.26(b)(12), "significant materials" are defined as follows: raw materials; fuels; solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to EPCRA Section 313; fertilizers, pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with stormwater discharges. Due to the extensive number of industrial facilities on the Hanford Site, inventories of "significant materials" for each facility were not prepared specifically for this SWPPP. Instead a complete site-wide inventory of "significant materials" is found in the *1991 Tier Two Emergency and Hazardous Chemical Inventory* (DOE-RL 1992). This document was prepared under Section 312 of EPCRA, also known as Title III of the Superfund Amendments and Reauthorization Act (SARA), which requires operators of certain facilities that manufacture (including import), process, or otherwise use toxic chemicals listed under 40 CFR 372 to provide an inventory of these chemicals over certain specified volume thresholds. Reporting requirements include the chemical name, volumes on site, days on site, storage and location codes, and emergency contacts. In addition to this document, chemical inventories are also provided in the various spill control plans referenced throughout this document.

No "significant materials" were identified during the field surveys that might impact the Columbia River during stormwater runoff.

Under NPDES General Permit requirements, the following additional SWPPP and monitoring requirements must be implemented for industrial facilities where EPCRA Section 313 "water priority chemicals" are stored, handled, processed, or transferred:

- Appropriate containment, drainage control, and/or diversionary structures must be provided. In addition, in liquid storage areas where stormwater runoff comes into contact with any equipment, tank, container, or other vessel used for Section 313 water priority chemicals, appropriate measures must be taken to minimize discharges of these chemicals.
- Stormwater discharges that come into contact with any equipment, tank, container, or other vessel or area used for storage of a Section 313 water priority chemical, or located at a truck or rail car loading or unloading area where a Section 313 water priority chemical is handled must be monitored semi-annually and reported annually for: oil and grease, biochemical oxygen demand (BOD-5 day), chemical oxygen demand (COD), total suspended solids (TSS), total Kjeldahl nitrogen (TKN), total phosphorus, pH, whole effluent acute toxicity testing, and any other Section 313 water priority chemical for which the facility reports.

On June 7, 1994 five facilities identified by WHC as storing EPCRA Section 313 water priority chemicals were visited by a Registered Professional Engineer from Golder Associates Inc. as part of the process of certifying the SWPPP. The facilities included 183KE, 183N, 283KE, 283W and 315 where chlorine gas is used as an anti-microbial agent in water treatment facilities for Hanford Site water supplies.

Chlorine gas is delivered to the specified locations as a gas in pressurized steel containers specifically designed for safe storage of chlorine. These containers are generally housed in covered enclosures surrounded by locked fencing. Covered storage of the chlorine containers is the stormwater BMP for chlorine storage.

The failure mode for the chlorine containers would be a leak or break in the piping. In this case, the gas would either be contained within a building or immediately disperse into the atmosphere. Chlorine gas is a hazardous chemical and a chlorine gas release would be a serious safety concern. However, a chlorine gas release would not pose a threat to stormwater.

Chlorine injection occurs within buildings, and is the stormwater BMP for chlorine usage. Floor drains in these areas connect to process or sanitary sewers, and not to stormwater sewers. Thus, a leak of chlorinated water at these points would not have significant potential for direct contact with stormwater or the potential for discharge to stormwater. Chlorine could have an impact to stormwater only under a combination of unlikely events, i.e., chlorine overdosing of the treated water followed by leakage or rupture of the water supply tanks, pumps, or piping. Even in this case, there is negligible potential for significant impact on the receiving water (the Columbia River).

Areas of chlorine usage are subject to routine monitoring and maintenance as part of the Hanford safety program, as well as routine operational monitoring and inspection. In addition, a significant leak of chlorine gas would be immediately obvious. The safety concern is sufficient to ensure prompt maintenance of any dangerous leak. Considering the level of attention to safety at the Hanford Site, and the negligible threat to stormwater from chlorine storage and use, no additional or separate inspection and recordkeeping is necessary. However, these areas shall be

inspected yearly as part of the update of this SWPPP for any conditions which could reasonably lead to failure or discharge. This inspection shall include, at a minimum:

- valves and piping handling chlorine gas
- valves, piping, and pumps handling chlorinated water
- chlorine storage containers
- chlorine storage enclosures
- chlorine injection areas
- other equipment or conditions which could affect the ability of chlorine to contact or discharge to stormwater.

3.5 PAST SPILLS AND LEAKS

Appendix C contains lists of "significant" spills and leaks of toxic or hazardous substances that have occurred at each facility area, and are based on site records of spills meeting CERCLA and Ecology reporting requirements. These lists include the date, location, description, response (if known) to each spill, as well as measures to be taken to prevent future similar spills. "Significant spills" includes releases in excess of reportable quantities, defined as follows: "A reportable quantity (RQ) discharge occurs when a quantity of a hazardous substance or oil is spilled or released within a 24-hour period of time and exceeds the RQ level assigned to that substance under CERCLA or the CWA. These levels or quantities are defined in terms of gallons or pounds. Regulations listing these quantities are contained in 40 CFR 302.4, 40 CFR 117.21, and 40 CFR 110.10" (CFR 1991).

In addition to the data sources described above, spill records are also maintained by ICF Kaiser Hanford Company (ICF KH) and Battelle Pacific Northwest Laboratories (PNL). PNL maintains spill records in the Environmental Compliance Section, and provides a monthly letter report of spills to DOE-RL. ICF KH maintains (including subcontractors) spill records in their Environmental Programs and Integration Department.

3.6 NON-STORMWATER DISCHARGES

The SWPPP requires certification, signed by an authorized individual of the permittee, that the facility area(s) has or have been evaluated or tested for non-stormwater discharges, which would include identification of potential non-stormwater discharge locations, dates, and descriptions of the methods used and results of any test and/or evaluation for such discharges. If certification is not feasible, the source identification section of the SWPPP shall indicate why the certification was not feasible, along with the identifications of potential significant sources of non-stormwater at the facility. In addition, any facility within the Hanford Site that is unable to provide non-stormwater certification must notify the EPA Director by October 1, 1993, or 180 days after the date of submitting an NOI application, for any facility which began to discharge stormwater runoff associated with industrial activity after October 1, 1992. Examples of non-stormwater discharges include any process water, air conditioner condensate, non-contact cooling water, vehicle wash water, or sanitary wastewater.

EPA was notified in a letter dated September 24, 1993 (Holt 1993) that the non-stormwater discharge certification would not be completed by October 1, 1993 as required by the general permit. DOE-RL estimated at this time that the outfall certification process should be completed by June 1, 1994. DOE-RL has since determined that because the outfall serves a research facility operated by Pacific Northwest Laboratory and because research facilities are not

within the scope of federal stormwater rules, the outfall serving the facility would not require certification for non-stormwater discharges. Therefore, unless EPA disagrees with this interpretation, DOE-RL will not be submitting to EPA the general permit certification required (Wisness 1994). Documentation providing the rationale and justification for this interpretation can be found in Wisness (1994).

3.7 STORMWATER MONITORING DATA

NPDES industrial stormwater regulations (CFR 1991 and FR 1992) require that a SWPPP must contain a summary of any existing stormwater sampling data, and that it describe the sample collection procedures used. There is currently no stormwater monitoring data for any of the facilities in the Hanford Site areas, as would be expected in a region with an average of only 6 inches of annual precipitation. Therefore, no stormwater monitoring data has been presented in the SWPPP.

3.8 SUMMARY OF POTENTIAL POLLUTANT SOURCES AND RISKS

Based on the field surveys discussed in Section 2.1.2, Appendix B contains a summary of each facility's industrial activities with a high risk potential to contaminate stormwater runoff, including those areas and activities associated with materials loading and unloading, outdoor storage, outdoor manufacturing or processing, on-site waste disposal, and significant dust or particulate-generating activities. Any pollutants of concern that may be associated with such activities are also described.

3.9 BEST MANAGEMENT PRACTICES

Typically, two broad categories of BMPs are used by industry to control point source, non-routine discharge of pollutants from sources such as stormwater runoff, drainage from raw material storage and waste disposal areas, and areas where spills or leaks have occurred. These categories include non-structural source control BMPs, and structural control/runoff treatment BMPs.

Non-structural source control BMPs are typically used as a first line, low-cost defense against the release of pollutants into stormwater runoff. These types of BMPs include various methods such as good housekeeping, employee training, preventive maintenance (visual inspections and equipment maintenance), spill prevention and response procedures (spill control plans), record keeping and reporting, using mulches and covers on disturbed soils, putting roofs over outside storage areas, and sediment and erosion control measures. In general, source control BMPs are more cost-effective to use than runoff treatment BMPs since it is usually more cost-effective to prevent water quality impacts rather than treat or remove pollutants after the fact.

Structural control/runoff treatment BMPs include facilities that remove pollutants by gravity settling of particulate pollutants (detention facilities - including basins, wet ponds, constructed wetlands), oil/water separators, infiltration (sumps, basins, trenches) and filtration devices (sand filtration), biological uptake (biofiltration swales and vegetative filter strips), and streamside stabilization (vegetative or structural, bioengineering, etc.). These types of BMPs can accomplish pollutant load reductions if properly designed and maintained. However, pollutant loads from urban areas are typically increased such that, even with the use of BMPs, it is unlikely they will be reduced to levels approximating pre-development conditions. Nevertheless, three factors govern the pollutant removal capability of a runoff treatment BMP: the removal

mechanisms used, the fraction of the annual runoff volume that is effectively treated, and the nature of the pollutant being removed.

Table 3-1 summarizes the existing BMPs that apply to materials exposed to the elements, as identified in the spill control plans prepared for each of the Hanford Site Areas.

BMPs have been completed, or are in progress, for the stormwater outfalls that were determined during inspection to have a potential to discharge pollution to the Columbia River as a result of stormwater runoff. Outfalls that were determined not to be potential sources of pollution to the Columbia River will continue to be inspected annually for changes in permit status. Those outfalls that were identified as being NPDES permitted for industrial process discharge will be removed from future SWCSCE reports and SWPPP updates but will be monitored for changes in permit status (WHC 1994).

The outfalls associated with research facilities (e.g. the research facility operated by Pacific Northwest Laboratory [PNL]) are not required to comply with the federal stormwater regulations. A letter was sent to EPA on June 23, 1994 (Wisness 1994) notifying them of the change in status for these outfalls. However, in keeping with the spirit of the stormwater regulations, PNL will continue to inspect these outfalls on an annual basis to determine compliance with permit requirements. These outfalls are located in the 100-F Area (outfall J) and in the 300 Area (outfalls A through D)(WHC 1994).

3.10 SWPPP IMPLEMENTATION

As mentioned in Section 1.1, the baseline SWPPP developed for the Hanford Site industrial facilities was implemented before October 1, 1993. In implementing the SWPPP, the following items were accomplished:

- The pollution prevention team was identified and assigned responsibility for implementing the various components of the SWPPP, including BMPs and
- Three training sessions were conducted for the PPT after approval of the baseline SWPPP (WHC 1993) and before October 1, 1993. Additional training of the PPT has occurred prior to the inspections of the outfalls every year.
- Training has been incorporated into the WHC CM-7-5 Manual (WHC 1991) which is used to track all environmental permits and training for the site. Where appropriate, contractor personnel on-site will also be trained in relevant aspects of the SWPPP. Employees and contractor personnel working in facility areas where EPCRA 313 water priority chemicals are used or stored must also be trained, at least once a year, in applicable requirements and regulations, and features and operations of facilities that are designed to minimize discharges of

Facility Area		BMP Type											
100 B & C		●	Natural and Concrete Interceptor Trenches										
100 K		●	Retention/Emergency Dump Basins										
100 N		●	Curbed Catch Basin Collection										
100 D & DR		●	Buried Tanks										
100 F		●	Tank Monitoring										
100 H		●	Berms/Dikes/Retaining Walls										
300		●	Drainage Sumps										
		●	Pipe Trenches and Crib										
		●	Liquid Waste Disposal Facilities (LWDF)										
		●	Isolation By Location Away From River										
		●	Routine Walkthrough and Surveillance										
		●	Testing Prior to Discharging										
		●	Monitoring										

*Data from AREA Spill Prevention, Control and Counter Measure Plans WHIC-SP-6010, 0460, and 0437

Table 3-1. Existing Stormwater Runoff Related BMP's.

Section 313 water priority chemicals, particularly spill prevention procedures and BMPs. This training is covered as part of the operator certification process for water treatment facilities.

- Regular reporting intervals have been established in the first annual Hanford Site Storm Water Comprehensive Site Compliance Evaluation Report (WHC 1994). Annual reports will cover the period from July to June the following year and the report is to be certified by October 1 of each year.

When pollution prevention activities are conducted at facilities, these activities should be reported to the facility and/or area environmental compliance officer or his/her appointee.

3.11 COMPREHENSIVE SITE COMPLIANCE EVALUATIONS

The Hanford Site SWPPP has been implemented since October 1, 1993 and comprehensive site compliance evaluations have been conducted by the PPT on an annual basis (WHC 1994, 1995). These evaluations included:

- Inspection of stormwater drainage areas for evidence of pollutants entering the drainage system
- Evaluation of the effectiveness of BMPs
- Observation of any structural control BMPs, sediment/erosion controls, and other stormwater BMPs to ensure proper operation
- Preparing a report summarizing inspection results and follow up actions, including signing the report and identifying the date of inspection and personnel who conducted the inspection

Additional activities required to maintain compliance include:

- Record keeping and internal reporting of spills, leaks, inspections, and maintenance activities. For spills and leaks, records should include information such as the date and time of the incident, weather conditions, cause, and resulting environmental problems.
- SWPPP revisions resulting from major changes in a facility's design, construction, operation, or maintenance. As mentioned earlier in Section 1.1, if the pollution prevention team subsequently discovers after April 1, 1993, that an industrial facility located within a Hanford Site facility area uses and/or stores federal EPCRA Section 313 water priority chemicals, then the SWPPP for such a facility must be reviewed, evaluated and certified by a Registered Professional Engineer in order to incorporate SWPPP modifications addressing special regulatory requirements for monitoring, reporting, training, and preventive maintenance practices at EPCRA 313 facilities. Recertification must take place every three years thereafter or as soon as practicable after significant modifications are made to the facility. By means of the certification the engineer, having examined the facility and being familiar with the SWPPP must attest that

the SWPPP has been prepared in accordance with good engineering practices. Such certification shall in no way relieve the owner or operator of a facility covered by the SWPPP of their duty to prepare and fully implement the SWPPP.

4.0 REFERENCES

- Berman, L., C. Hartline, N. Ryan, and J. Throne, May 1991, *Water Quality: Urban Runoff Solutions*, American Public Works Association Special Report No. 61.
- Code of Federal Regulations (CFR), 1991, Parts 122 - 124.
- Chien, Y.M., 1989, *Chemical Spill Prevention Control and Counter Measures Plan - 100 Areas*, WHC-SP-0460, Westinghouse Hanford Company, Richland, Washington.
- DOE, 1987, *Disposal of Hanford Defense High Level, Transuranic and Tank Wastes, Final Environmental Impact Statement*, DOE/EIS-0113 (vol. 1 of 5), U.S. Department of Energy, Washington, D.C.
- DOE, 1991, *Overview of the Hanford Cleanup Five-Year Plan*; U.S. Department of Energy, Richland, Washington.
- DOE-RL, 1991, *Environmental Restoration and Waste Management Site-Specific Plan for the Richland Operations Office - Hanford Site Five-Year Plan Fiscal Years 1993-1997*, DOE/RL-91-25, U.S. Department of Energy, Richland, Washington.
- DOE-RL, 1992, *1991 Tier Two Emergency and Hazardous Chemical Inventory-Emergency Planning and Community Right-To-Know Act*, Section 312, U.S. Department of Energy - Richland Operations Office, Richland, Washington
- Duffield, G.W., 1991, *300 Area Spill Retention Control and Counter Measures Plan*, WHC-SP-0610, Westinghouse Hanford Company, Richland, Washington.
- Ecology et al., 1991, *Hanford Federal Facility Agreement and Consent Order*, Washington Department of Ecology, U.S. Environmental Protection Agency, and U.S. Department of Energy, Olympia, Washington.
- Ecology and USDOE, 1991, *Consent Order No. DE 91NM-177*, Washington Department of Ecology, U.S. Department of Energy, Olympia, Washington.
- EPA, 1992, *"Storm Water Management for Industrial Activities, Developing Pollution Prevention Plans and Best Management Practices"*, EPA 832-R-92-006, U.S. Environmental Protection Agency, Office of Wastewater Enforcement and Compliance, Washington, D.C.
- Federal Register (FR), November 16, 1990, Volume 55, No. 222, Page 47990.
- Federal Register (FR), September 9, 1992, Volume 57, No. 175, Pages 41236 and 41344.
- Haggard, R.D., 1991, *1100 Area Chemical Spill Control Plan*, WHC-SP-xxxx, Westinghouse Hanford Company, Richland, Washington.
- Haggard, R.D., 1992a, *700 Area Chemical Spill Control Plan*, WHC-SP-0780, Westinghouse Hanford Company, Richland, Washington.

- Haggard, R.D., 1992b, *300 Area Chemical Spill Control Plan*, WHC-SP-0910, Westinghouse Hanford Company, Richland, Washington.
- Holt, 1993, Notification to the USEPA Regarding Certification of Storm Water Discharges, Letter to C.E. Findley from Robert G. Holt DOE-RL, #93-RPS-359, September 24, 1994.
- McKarns, 1991, *400 Area Spill Prevention, Control, and Counter Measures Plan*, WHC-SP-0634, Westinghouse Hanford Company, Richland, Washington.
- PNL, 1989, *Status of FY 1988 Soil-Water Balance Studies on the Hanford Site*, PNL-6750/UC70, Battelle Pacific Northwest Laboratories, Richland, Washington.
- PNL, 1990, *Natural Groundwater Recharge and Water Balance at the Hanford Site*, PNL-7215/UC-802, Battelle Pacific Northwest Laboratories, Richland, Washington.
- Rokkan, D.J., 1988, *Westinghouse Hanford Company 100 Areas Environmental Releases for 1987*, WHC-EP-0165, Westinghouse Hanford Company, Richland, Washington.
- Rokkan, D.J., 1989, *Westinghouse Hanford Company 100 Areas Environmental Releases for 1988*, WHC-EP-0165-1, Westinghouse Hanford Company, Richland, Washington.
- Rokkan, D.J., 1990, *Westinghouse Hanford Company 100 Areas Environmental Releases for 1989*, WHC-EP-0165-2, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1990, *Westinghouse Hanford Company Effluent Report for 300, 400, and 1100 Area Operations for Calendar Year 1989*, WHC-EP-0257-01, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1991, *Environmental Compliance Manual*, WHC-CM-7-5, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1993, *Hanford Site Storm Water Pollution Prevention Plan*, WHC-SD-EN-EV-021, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1994, *Hanford Site Storm Water Comprehensive Site Compliance Evaluation Report*, WHC-SD-EN-EE-014, Rev. 1, Westinghouse Hanford Company, Richland, Washington.
- WHC, 1995, *Hanford Site Storm Water Comprehensive Site Compliance Evaluation Report*, WHC-SD-EE-015, Rev. 0, Westinghouse Hanford Company, Richland, Washington.
- Wisness, 1994, *Non-Storm Water Discharge Certification Under Storm Water General Permit WA-00-A17F*, Letter to Joseph Wallace, USEPA from Steven H. Wisness, DOE-RL, #94-RPS-245, June 23, 1994.

APPENDIX A

STORMWATER OUTFALL MAPS

Figure A-1. Hanford Stormwater Pollution Prevention Plan - 100 B & C Area Outfalls and Sources Map. (Sheet 1 of 3)

953-1201/60502/9-13-95

Figure A-1. Hanford Stormwater Pollution Prevention Plan-100 B and 100 C Outfalls and Sources. (Sheet 2 of 3)

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Figure A-1. Hanford Stormwater Pollution Prevention Plan-100 B and 100 C Outfalls and Sources. (Sheet 3 of 3)

953-1201605039-1395

Source: Portion of U.S. DOE H-1-52166
100 Areas Topographic Maps

Figure A-2. Hanford Stormwater Pollution
Prevention Plan - 100 D & DR Area Outfalls
and Sources Map. (Sheet 1 of 3)

953-1201/60511/9-13-95

Potential Point Source Conveyance		
ID	North	East
1	152,470	573,605
2	152,321	573,500

Figure A-2. Hanford Stormwater Pollution Prevention Plan-100 D and 100 DR Outfalls and Sources. (Sheet 2 of 3)

953-1201/60513/9-13-95

Figure A-2. Hanford Stormwater Pollution Prevention Plan-100 D and 100 DR Outfalls and Sources. (Sheet 3 of 3)

Source: Portion of U.S. DOE H-1-52165
100 Areas Topographic Maps

Figure A-3. Hanford Stormwater Pollution
Prevention Plan - 100 F Area Outfalls and
Sources Map. (Sheet 1 of 6)

953-1201/60518/9-13-95

953-1201/60520/9-13-95

Figure A-3. Hanford Stormwater Pollution Prevention Plan-100 F Outfalls and Sources. (Sheet 2 of 6)

Figure A-3. Hanford Stormwater Pollution Prevention Plan-100 F Outfalls and Sources. (Sheet 4 of 6)

Figure A-3. Hanford Stormwater Pollution Prevention Plan-100 F Outfalls and Sources. (Sheet 5 of 6)

Figure A-3. Hanford Stormwater Pollution Prevention Plan-100 F Outfalls and Sources. (Sheet 6 of 6)

953-1201605239-13-95

Figure A-4. Hanford Stormwater Pollution Prevention Plan - 100 H Area Outfalls and Sources Map. (Sheet 1 of 4)

953-1201/60514/9-13-95

Figure A-4. Hanford Stormwater Pollution Prevention Plan-100 H Outfalls and Sources. (Sheet 2 of 4)

953-1201/605159-13.95

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953-1201/60516/9-13-95

Figure A-4. Hanford Stormwater Pollution Prevention Plan-100 H Outfalls and Sources. (Sheet 3 of 4)

953-1201/605179-13-95

Source: Portion of U.S. DOE H-1-52166
100 Areas Topographic Maps

Figure A-5. Hanford Stormwater Pollution
Prevention Plan - 100 K Area Outfalls and
Sources Map. (Sheet 1 of 3)

953-1201/60504P-13-95

Potential Point Source Conveyance		
ID	North	East
1	147,136	569,198
2	147,038	568,057
3	147,030	568,921

General Discharge
Location into River

Potential Pollutant Source

--- Outline of Outfall
--- Drainage Area

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Figure A-5. Hanford Stormwater Pollution Prevention Plan-100 K West Outfalls and Sources. (Sheet 2 of 3)

953-1201/60506/9-13-95

Figure A-5. Hanford Stormwater Pollution Prevention Plan-100 K West Outfalls and Sources. (Sheet 3 of 3)

Source: Portion of U.S. DOE H-1-52166
100 Areas Topographic Maps

Figure A-6. Hanford Stormwater Pollution
Prevention Plan - 100 N Area Outfalls and
Sources Map. (Sheet 1 of 4)

953-120160507/9-13-95

953-1201/60508/9-13-95

Figure A-6. Hanford Stormwater Pollution Prevention Plan-100 N East Outfalls and Sources. (Sheet 2 of 4)

Figure A-6. Hanford Stormwater Pollution Prevention Plan-100 N East Outfalls and Sources. (Sheet 3 of 4)

Figure A-6. Hanford Stormwater Pollution Prevention Plan-100 N East Outfalls and Sources. (Sheet 4 of 4)

Figure A-7. Hanford Stormwater Pollution Prevention Plan - 300 Area Outfalls and Sources Map. (Sheet 1 of 3)

953-1201/60527/9-13-95

Figure A-7. Hanford Stormwater Pollution Prevention Plan - 300 Area Outfalls and Sources Map. (Sheet 3 of 3)

APPENDIX B

OUTFALL DESCRIPTION TABLES

SURVEY SUMMARY FOR THE 100-B AND 100-C AREAS

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status Inspection Date:	Potential Pollutant Sources	Best Management Practice(s)
Figure A-1, Sheet 2	A	1	Storm water runoff would flow over riprap to close proximity of the river. The riprap was located in the area of the 116-C-4 Outfall. On the terrace above the riprap was a roped-off area that was posted "Danger - Keep Away." The riprap created a channel toward the river and was comprised of irregularly shaped 0.3 to 0.9 meter (one to three feet) diameter rocks. The riprap was approximately six meters (20 feet) wide and was moderately sloped to the river.	None identified.	It was determined no pollutant source exists, so no action is necessary.

SURVEY SUMMARY FOR THE 100-B AND 100-C AREAS

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status Inspection Date:	Potential Pollutant Sources	Best Management Practice(s)
Figure A-1, Sheet 2	B	2	Storm water runoff would flow over riprap to within meters of the river. The riprap is in the area of the 116-B-8 Outfall which has been demolished and covered with dirt. Formerly known as 1904-B. On the terrace above the riprap was a 9 x 9 meter (30 x 30 foot) roped-off area that is posted "Surface Contamination." This site is identified in the Quarterly Environmental Radiological Survey Summary (WHC-SP-0665-11). The riprap is comprised of irregularly shaped 0.3 to 0.9 meter (one to three feet) diameter rocks. The riprap and extensions of the bank created several channels that came together half-way down the bank to form a single riprap channel approximately 12 meters (40 feet) wide that led to the river.	Radiological surface contamination area.	This outfall has been demolished and covered with dirt. There is no access to the river. No further action is planned at this time.

BT-1.1

SURVEY SUMMARY FOR THE 100-B AND 100-C AREAS

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status Inspection Date:	Potential Pollutant Sources	Best Management Practice(s)
Figure A-1, Sheet 3	C	3	At the top of the gently-to-moderate sloped bank, above the flume, is the concrete outfall structure. This area is labelled on selected maps as the "116-B-7 Outfall." It is fenced and posted as "Surface Contamination". This site is identified in the Quarterly Environmental Radiological Survey Summary (WHC-SP-0665-11). The configuration of the outfall structure is such that storm water coming in contact with the interior of the structure would not overflow to the bank and reach the river.	Radiological surface contamination area.	There is no pathway for the surface contamination to reach the river, so no immediate action is planned.
Figure A-1, Sheet 3	E	5	Stormwater runoff would come in contact with Building 181-B and surrounding materials. The north side of the facility is in direct contact with the river. A gravel/asphalt parking lot is located on the south side of the facility. Stormwater could drain to the river from this parking lot thru a hole in a concrete retaining wall which extends from the east side of the 181-B Building. Transformers located to the southeast of Building 181-B have secondary containment that drains to a septic tank.	None identified.	No action is required.

SURVEY SUMMARY OF 100-D AND 100-DR AREAS

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-2, Sheet 2	A	1	A concrete flume, which is labelled on selected maps as "116-DR-5," extends from the bank into the river. The flume is surrounded by natural vegetation and river rock. The concrete walls would channel storm water flow into the river. The river bank is moderately sloped.	None identified.	No action is planned because there is no source of contamination.
Figure A-2, Sheet 2	B	2	A concrete flume, which is labelled on selected maps as "116-D-5" outfall, formerly called 1904-D, extends from the bank into the river. The concrete walls would channel storm water flow into the river. At the river's edge, concrete has been crudely poured into the flume in an apparent attempt to cover the flume and block flow. The flume is surrounded by natural vegetation and river rock. The river bank is moderately sloped. This area is posted "Underground Radioactive Material".	Underground Radioactive material.	There is no source of contamination which storm runoff can carry to the river. No action is planned.

SURVEY SUMMARY OF 100-D AND 100-DR AREAS

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-2, Sheet 3	C	3	Stormwater runoff would come in contact with Building 181-D and surrounding materials. The north side of the building is in direct contact with the river. A gravel parking lot is located on the south side of the facility. Electrical transformers are located on the south side of Building 181-D. Two large transformers are classified as "PCB Contaminated" (50-499 ppm PCBs) and are provided with secondary containment. Four smaller non PCB transformers do not have secondary containment, but due to their location and condition would not be expected to be a pollutant source.	None identified.	No action required.

BT-21

SURVEY SUMMARY FOR 100-F AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-3, Sheet 2 and 3	B	4	The 118-F-5 Area is located 154 meters (500 feet) from a drainage channel to the river. The area appears as a flattened burial mound and is covered with gravel. Buried waste at this site is covered by approximately 4.5 meters (15 feet) of clean material. The area is posted as "Underground Radioactive Material."	Underground Radioactive Material.	No action is planned.
Figure A-3, Sheet 4	C	5	Located outside the NE corner of 107-F Area was a roped-off area that was posted "Controlled Area" The area is covered with gravel and slopes gently toward the river.	None identified.	No action is required.
Figure A-3, Sheet 4		6	The gravel lot has been built-up over an area identified as the "Animal Waste Leaching Trench".	Animal Waste Leaching Trench.	No action is planned.
Figure A-3, Sheet 4	F	9	A concrete flume extends from the bank into the river. The concrete walls would channel storm water runoff flow. The flume is surrounded by river rock and the riverbed. According to facility maps, the flume was previously a discharge point for cooling water from 107-F. The outfall is labeled 116-F-8.	None identified.	No known source of contamination. No action required.

BT-3

SURVEY SUMMARY FOR 100-F AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-3, Sheet 4	G	11	A concrete flume extends from the riverbank into the river. The concrete walls would channel stormwater runoff flow. The flume, which is labeled as the "PNL Outfall" on some site maps, is surrounded by river rock and riverbed. The outfall is labeled 116-F-9.	None identified	No known source of contamination. No action.
Figure A-3, Sheet 5	H	12	An open 20 centimeter (eight inch) diameter vertical pipe extends from the ground in an area to the north of the demolished 181-F Intake Facility. The area surrounding the pipe is covered by rock and natural vegetation. The pipe was probably once connected to the demolished 181-F Intake Facility.	None identified.	Given the inactive status and no process operations at 100-F, there appears to be no source that could discharge from this pipe. No action is planned.
Figure A-3, Sheet 5		13	Another open 20 centimeter (eight inch) diameter vertical pipe extends from the ground in an area to the north of the demolished 181-F Intake Facility. The area surrounding the pipe is covered by rock and natural vegetation. The pipe was probably once connected to the demolished 181-F Intake Facility.	None identified.	Given the inactive status and no process operations at 100-F, there appears to be no source that could discharge from this pipe. No action is planned.

SURVEY SUMMARY FOR 100-F AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-3, Sheet 6	J	15	Storm water runoff drains to the river via a paved boat ramp, which is adjacent to the WBF-1 and WBF-2 Buildings. The area is moderately sloped and consists of parking and roadways that are gravel. This outfall results from non-industrial sources.	None identified.	No action is planned.

SURVEY SUMMARY FOR THE 100-H AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-4, Sheet 2	A	1	A 13 centimeter (five inch) diameter pipe is present that would discharge to a 3-sided concrete dry well. A natural drainage channel is visible that extends from the dry well to the river. The area is gently sloped with dirt, river rocks and natural vegetation, which includes a couple of trees. Believed to be a Hanford Irrigation District weir box left from the pre-Manhattan Project era.	None identified.	No surface or process source exists today. No action required.
Figure A-4, Sheet 2	C	3	An open 30 centimeter (12 inch) diameter pipe is embedded in a concrete square and is located at the top of the river bank. It has been identified as a culvert draining the upland side of the adjacent road. The upper portion of the bank has a natural ravine that extends from the head of the pipe. The upper portion of the bank is steeply sloped and the lower portion is moderately sloped toward the river. The area is covered with river rock and natural vegetation.	None identified.	No contamination is evident in the area. No action is required.

BT-4

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SURVEY SUMMARY FOR THE 100-H AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-4, Sheet 2	D	4	Storm water runoff would flow over the remnants of the demolished 116-H-5 structure. The remnants include concrete steps and large concrete blocks. Additional rock have been placed as riprap on the slope. The bank is moderately sloped until the steep wall of the large concrete blocks. Below the concrete blocks, the bank is relatively flat.	Sediment.	Riprap acts as BMP to decrease runoff velocity and stabilize slope. No further action is planned. There is no source of contamination.
Figure A-4, Sheet 2	E	5	Storm water runoff would flow over the riprap to within feet of the river. According to the maps, the riprap was probably placed over the remnants of the demolished 116-H-5. The riprap is moderately sloped with virtually no vegetation.	Sediment.	No action is necessary. Riprap acts as BMP to decrease runoff velocity and stabilize slope.
Figure A-4, Sheet 3	F	6	A 33 centimeter (thirteen inch) diameter "closed" corrugated pipe is embedded in a square concrete block located at the top of the river bank. The end of the pipe has a piece of sheet metal covering the majority of the opening. It has been identified as a culvert draining the upland side of the adjacent road. The bank below is moderately sloped with natural vegetation.	None identified.	No contamination is evident in this area. No action is required.

SURVEY SUMMARY FOR THE 100-H AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-4, Sheet 3	G	7	Storm water runoff would flow from a gravel roadway and terrace area through an erosion area that surrounds a concrete headwall on the river bank, draining the upland side of the adjacent road. The erosion begins within feet of the gravel roadway and has removed rock and soil behind the concrete headwall. Near the roadway the bank is steeply sloped. Below the headwall the bank is moderately sloped to the river. The bank is covered with natural vegetation.	Sediment.	No contamination is evident in the area. No action is required.
Figure A-4, Sheet 3	H	8	A 33 centimeter (13 inch) diameter "closed" corrugated pipe is embedded in a square concrete block located near the top of the river bank. The end of the pipe has a piece of sheet metal covering the majority of the opening. It has been identified as a culvert draining the upland side of the adjacent road. The bank below is moderately sloped with natural vegetation.	None identified.	No contamination is evident in this area. No action is required.

BT-4.2

SURVEY SUMMARY FOR THE 100-H AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-4, Sheet 3	I	9	A 15 centimeter (six inch) diameter pipe of unknown origin extends horizontally out of the river bank. The discharge point is approximately 3 meters (10 feet) below the top of the bank. The pipe does not appear to be supported and is not covered or capped. It is believed to be an old storm water culvert from construction days. The bank is moderately sloped with natural vegetation.	None identified.	Given the inactive status and no process operations at 100-H, there appears to be no source that could discharge from this pipe. No action is necessary.
Figure A-4, Sheet 3	J	10	An 46 centimeter (18 inch) diameter corrugated pipe of unknown origin extends horizontally out of the river bank. The discharge point is near the top of the bank and approximately 40 meters (131 feet) from the river. The pipe does not appear to be supported and is not covered or capped. The upper portion of the bank is moderately sloped and is covered with river rock and dirt. The lower portion of the bank is gently sloped with natural vegetation.	Sediment.	No source of contamination. No action is planned.

BT-4.3

SURVEY SUMMARY FOR THE 100-H AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Potential Pollutant Sources	Best Management Practice(s)
Figure A-4, Sheet 4	L	13	An area of the river bank near Well 99-42 is covered with rubble, which was comprised of wood and metal and what looks like tar. Storm water runoff would be in contact with these materials prior to flowing to the river. The bank is moderately steep and is covered predominantly with river rock.	Metal and tar.	No source of contamination. No action is planned.

SURVEY SUMMARY FOR 100-KE AND 100-KW AREAS

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Storm Water Pollutant Sources	Best Management Practice(s)
Figure A-5, Sheet 2	A	1	A 41 centimeter (16 inch) culvert is present west of 100-K perimeter access road and east of 107-KE access road. Outfall is the floodplain just north of the perimeter access road. Areas potentially drained from this culvert and the floodplain are in radiological surface contamination areas. No source of runoff other than from precipitation is expected.	Radiological surface contamination area.	Surface contamination is currently being removed from the area potentially draining from this culvert. Outfall is approximately 320 meters (1,050 feet) from the river and is not a storm water discharge to the river. No additional action is planned.
Figure A-5, Sheet 2		2	A 41 centimeter (16 inch) culvert is present south of 100-K perimeter access road around the 107-KE retention basins. Outfall is the floodplain just north of perimeter access road. Areas potentially drained from this culvert and the floodplain are in radiological surface contamination areas. No source of runoff other than from precipitation is expected.	Radiological surface contamination area.	Surface contamination is currently being removed. Outfall is approximately 200 meters (656 feet) from the river and is not a storm water discharge to the river. No additional action is planned.

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SURVEY SUMMARY FOR 100-KE AND 100-KW AREAS

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Storm Water Pollutant Sources	Best Management Practice(s)
Figure A-5, Sheet 2	B	3	An eroded trench is present immediately north and east of the 1908-K outfall structure. This erosion was due to overflow during maximum water usage when the 100-K reactors were running. Since the reactors are no longer running, the overflow trench is no longer in use. Posted as a Radiological Contamination Area.	Radiological contamination area.	There is no discharge to the trench, no action is necessary.
Figure A-5 Sheet 3	E	9	A 41 centimeter (16 inch) culvert is present that would drain the area south of 100-K perimeter access road around the 107-KW retention basins. The outfall is the floodplain just north of perimeter access road. Areas potentially drained from this culvert and the floodplain are in radiological surface contamination areas. No source of runoff other than from precipitation is expected.	Radiological surface contamination area	One hundred and fifty meters (492 feet) from the river, no action is necessary.
Figure A-5, Sheet 3	F	10	A 41 centimeter (16 inch) culvert is present that would drain the area south of 100-K perimeter access road just east of 181-KW access road. Areas potentially drained from this culvert are not in radiological surface contamination areas, although the outfall is in a radiological surface contamination area.	Radiological surface contamination area.	One hundred and sixty meters (525 feet) from the river, no action is necessary.

BT-5.1

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SURVEY SUMMARY FOR 100-KE AND 100-KW AREAS

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Storm Water Pollutant Sources	Best Management Practice(s)
Figure A-5, Sheet 3	F	12	A 1.21 meter x 1.21 meter x 1.83 meter (4'x 4'x 6') basin is present in deck of 181-KW pier with outfall through 61 centimeter (24 inch) pipe east and down to the river. Asbestos-wrapped pipes on deck. The basin is not permitted like its 181-KE counterpart and is not capped. Runoff from 108-KW pier surfaces is expected to outfall directly to the river.	Asbestos-wrapped pipes.	Asbestos abatement is completed at this location. No source of contaminant. No further action is planned.
		13	A 3-inch diameter pipe with a valve adjacent to 181-KW fence was present on the east side.	None identified.	No action necessary.
Figure A-5, Sheet 3	G	11	A 41 centimeter (16 inch) culvert is present that would drain the area south of 100-K perimeter access road at north west corner of 100-K controlled area, with outfall west of 181-KW access road. Areas potentially drained from this culvert were not in radiological surface contamination areas and the outfall is not in a radiological contamination area.	None identified.	One hundred and twenty meters (394 feet) from the river, no source of contamination. No action is necessary.

BT-5.2

SURVEY SUMMARY FOR 100-N AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Storm Water Pollutant Sources	Best Management Practice(s)
Figure A-6, Sheet 3	D	8	Erosion point in terrace that drains from the storage area to local gutters then to the riverbank.	Sediment.	Will repair erosion point.
Figure A-6, Sheet 3	E	9	Major erosion point in terrace that drained to riverbank. Potential drainage from adjacent waste storage, non-waste storage, and shipping areas via local gutters. Dry well that drained this area was plugged, so overflow ran to this erosion point.	Area certified clean.	Erosion area has been regraded. No pollutant source. No further action is required.
Figure A-6, Sheet 3		10	Erosion point in terrace that drains to riverbank.	Sediments.	Eroded area has been repaired and designed flow path has been re-established. No further action is required.
Figure A-6, Sheet 3	F	11	Five centimeter (two inch) pipe. Previously used in leak detection system for 1304-N tank. Status: abandoned process piping. Inside of 1304-N is considered a radiological contamination zone.	Radiological contamination zone (pipe).	No water source. Icicle resulted from condensation or precipitation on outside of pipe. No action is planned.
Figure A-6, Sheet 3		12	Four centimeter (1½ inch) pipe that was previously used in leak detection system for 1304-N tank. Status: abandoned. Pipe was dry. Inside of 1304-N is considered a radiological contamination zone.	Asbestos-wrapped pipe radiological contamination zone.	Abandoned process piping. No rainwater source. No action required.

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SURVEY SUMMARY FOR 100-N AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Storm Water Pollutant Sources	Best Management Practice(s)
Figure A-6, Sheet 3	F	13	15 centimeter (six inch) pipe. Drain for 1304-N Tank. Status: valve closed. Inside of 1304-N is considered a radiological contamination zone. Pipe was dry.	Radiological contamination zone.	Abandoned process piping. No rainwater source. No action required.
Figure A-6, Sheet 3	G	14	Flume for outfall from 1908-N diversion system to river. Current status: Outfall 008 has been discontinued and is no longer permitted under NPDES.	None identified.	No rainwater source. Outfall abandoned. No action required.
Figure A-6, Sheet 4	I	16	2.54 centimeter (one inch) plastic pipe. Previously used as inlet for river water sampling. Current status: abandoned.	None identified.	Abandoned process piping. No rainwater source. No action required.
Figure A-6, Sheet 4		17	Five centimeter (two inch) iron pipe. Current status: unidentified.	None identified.	Abandoned process piping. No rainwater source. No action required.
Figure A-6, Sheet 4		18	1.3 centimeter (0.5 inch) plastic pipe. Previously used as inlet for river water sampling. Current status: abandoned.	None identified.	Abandoned process piping. No rainwater source. No action required.
Figure A-6, Sheet 4		19	30 centimeter (12 inch) culvert drains from south of 181-N to the riverbank. Current status: receives drainage from terrace above and potentially from radiological contamination area near 1304-N.	Possible Radiological Contamination.	No rainwater source. No action required.
Figure A-6, Sheet 4		20	Ten centimeter (four inch) iron pipe. Abandoned process piping.	None identified.	No rainwater source. No action required.

BT-6.1

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SURVEY SUMMARY FOR 100-N AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Storm Water Pollutant Sources	Best Management Practice(s)
Figure A-6, Sheet 4	I	21	Ten centimeter (four inch) iron pipe. Abandoned process piping.	None identified.	No rainwater source. No action required.
Figure A-6, Sheet 4		22	Five centimeter (two inch) iron pipe. Previously used for return line of sampling water received from river water sampling. Current status: abandoned.	None identified.	Abandoned process piping. No rainwater source. No action required.
Figure A-6, Sheet 4	J	23	30 centimeter (12 inch) pipe with screen. Status: abandoned. Believed to be a drainage line from 181-N.	None identified.	Abandoned process piping. No rainwater source. No action required.
Figure A-6, Sheet 4		24	30 centimeter (12 inch) pipe, capped. Status: abandoned. Believed to be a drainage line from 181-N.	None identified.	Abandoned process piping. No rainwater source. No action required.
Figure A-6, Sheet 4		25	30 centimeter (12 inch) pipe. Status: abandoned. Believed to be a drainage line from 181-N.	None identified.	Abandoned process piping. No rainwater source. No action required.
Figure A-6, Sheet 4	K	26	6.35 centimeter (2½ inch) pipe. Current status: Abandoned process piping, raw water return from 182-N.	None identified.	No rainwater source. No action required.
Figure A-6, Sheet 4	L	27	15 centimeter (six inch) aluminum pipe. Current status: Abandoned process piping, 182-N water tank system.	None identified.	No rainwater source. No action required.

BT-6.2

WHC-SD-EN-EV-021, Rev. 1

SURVEY SUMMARY FOR 300 AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Storm Water Pollutant Sources	Best Management Practice(s)
Figure A-7, Sheet 2	A	1	An underground pipe drains storm water from the roadway area between the north side of Building 331-C and the south side of Building 331 to an open trench that runs east to west between Buildings 331-D and 331-E. The open trench is piped to a culvert passing beneath a gravel roadway and the perimeter fence. The discharge was approximately 46 meters (150 feet) from the river. The bank was moderately sloped with natural vegetation. This outfall results from non-industrial sources.	None identified.	No action planned.
Figure A-7, Sheet 2	B	2	Located southeast of Building 331, a 38 centimeter (15 inch) diameter pipe in a drainage ditch allows runoff from the paved parking area, which has a large gravel border, to drain to the river. The bank is moderately sloped with natural vegetation. This outfall results from non-industrial sources.	None identified.	No action planned.

BT-7

MHC-SD-EN-EV-021, Rev. 1

SURVEY SUMMARY FOR 300 AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Storm Water Pollutant Sources	Best Management Practice(s)
Figure A-7, Sheet 2	D	4	Storm water from the paved parking area located northeast of Building 331 flows out a channeled opening in the concrete curb and a 30 centimeter (12 inch) pipe into a ditch, draining under a gravel road in a 38 centimeter (15 inch) pipe to another ditch with a 30 centimeter (12 inch) pipe heading toward the river. The area is gently sloped with natural vegetation. This outfall results from non-industrial sources.	None identified.	No action planned.
Figure A-7, Sheet 3	E	5	New parking lot was installed in 1994 with grass planted between the parking area and the river to reduce runoff.	None identified.	Periodic visual inspections will be performed to assess runoff.
Figure A-7, Sheet 3	F	6	A sump that received the 309 Process sewer discharge has been abandoned in-place. Runoff will not enter this sump because of a raised concrete slab. When the new parking lot was constructed in 1994, grass was planted between the parking lot and the river to reduce runoff.	None identified.	No action planned.

BT-7.1

MHC-SD-EN-EV-021, Rev. 1

SURVEY SUMMARY FOR 300 AREA

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Storm Water Pollutant Sources	Best Management Practice(s)
Figure A-7, Sheet 3	G	7	Storm water runoff would flow from an area at the eastern end of Locust Street over a dirt road that slopes gently towards the river. The road provides access to the river and the 312 Intake structure. Construction is taking place at the eastern end of Locust Street, increasing the amount of runoff from the area. Lower portions of the bank are gently sloped and covered with natural vegetation.	None identified.	Perform periodic visual inspection to assess runoff.
Figure A-7, Sheet 3	H	8	A steeply sloped bank east of the 315 Building has significant erosion. There are four distinct erosion areas in which storm water flows towards the river. The majority of the lower portion is covered with natural vegetation. A retaining wall has been constructed along the river in the areas where there is no vegetation.	Sediments.	Erosion is a continuing problem. A team has been formed to evaluate BMPs.
Figure A-7, Sheet 3	I	9	Storm water runoff from the area around Buildings 3769 and 3770 and the adjacent roadway would flow eastward through a natural ravine that slopes gently toward the river. Railroad ties are placed end-to-end adjacent to the roadway to reduce the runoff and erosion from this area. The ravine is covered with rock and dirt as well as natural vegetation.	Sediments.	Periodic visual inspections will be performed to assess runoff.

APPENDIX C

HANFORD SITE LIST OF SIGNIFICANT SPILLS AND LEAKS

C-1

WHC-SD-EN-EV-021, Rev. 1

C-2

WHC-SD-EN-EV-021, Rev. 1

Table C-3. List of Significant Spills and Leaks for the 100-N Area. (Sheet 1 of 2)

100-N AREA				Worksheet # Completed by: Title: Date:						
LIST OF SIGNIFICANT SPILLS AND LEAKS										
Directions: Record below all significant spills and significant leaks of toxic or hazardous pollutants that have occurred at the facility in the three years prior to the effective date of the permit.										
Definitions: Significant spills include, but are not limited to, releases of <u>oil</u> or <u>hazardous substances in excess of reportable quantities</u> .										
Date (month/day/year)	Spill	Leak	Location (as indicated on site map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	
7/90	✓		100 N service station	gasoline						
12/90	✓		100 N service station	gasoline						
6/91	✓		105-N reactor bldg.	gasoline	4 oz.					
7/91	✓		166-N	diesel fuel	1.5 pts.					
7/91	✓		105-N	gasoline	2 cues					
9/91	✓		105-N	diesel fuel	2 oz.					
10/91	✓		100-N badge house	gasoline	0.5 gal					
10/91	✓		MO-910/100 N	gasoline	5 gal					
12/91			105-N	aalon	1600 lbs					
1/92	✓		1701-N badge house	gasoline	1 qt.					

Table C-3. List of Significant Spills and Leaks for the 100-N Area. (Sheet 2 of 2)

100-N AREA					Worksheet #					
LIST OF SIGNIFICANT SPILLS AND LEAKS					Completed by:					
					Title:					
					Date:					
<p>Directions: Record below all significant spills and significant leaks of toxic or hazardous pollutants that have occurred at the facility in the three years prior to the effective date of the permit.</p>										
<p>Definitions: Significant spills include, but are not limited to, releases of <u>oil</u> or <u>hazardous substances in excess of reportable quantities</u>.</p>										
Date (month/day/year)	Spill	Leak	Location (as indicated on site map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	
2/92	✓		1717-N	1515 motor oil	1 pt.					
3/92	✓		105-N	ethylene glycol	0.5 gal.					
3/92	✓		100 N fire station	ethylene glycol	< 1 pt.					
5/92	✓		100 N parking lot	ethylene glycol	1 cue					
6/92	✓		1705-N parking lot	ethylene glycol	< 1 pt.					
7/92	✓		105-N	sulfuric acid	1 qt.					

C-4

WHC-SD-EN-EV-021, Rev. 1

Table C-4. List of Significant Spills and leaks for the 100-D and DR Areas.

100-D AND DR AREAS					Worksheet # Completed by: SAIC/Golder Title: Consultants Date: 3/8/93					
LIST OF SIGNIFICANT SPILLS AND LEAKS										
Directions: Record below all significant spills and significant leaks of toxic or hazardous pollutants that have occurred at the facility in the three years prior to the effective date of the permit.										
Definitions: Significant spills include, but are not limited to, releases of <u>oil</u> or <u>hazardous substances in excess of reportable quantities</u> .										
Date (month/day/year)	Spill	Leak	Location (as indicated on site map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	
4/91	✓		189-D bldg.	mercury	0.27 kg					
5/91	✓		100-D deactivated facility	mercury	minute					
5/91	✓		183-D pump house to pond	aluminum sulfate	4122 lbs					
6/91	✓		189-D substation	PCB 51 ppm	2-3 oz.					
10/91	✓		3707-D	ethylene glycol	1 pt.					
3/92	✓		3701-D	gasoline	1 qt.					
11/94	✓		1900 Building	ethylene glycol	4 lbs	Auto Anti- freeze	Car overheat	4 lbs	T	Cleaned up

C-5

WHC-SD-EN-EV-021, Rev. 1

Table C-5. List of Significant Spills and Leaks for the 100-H Area.

100 H AREA				Worksheet #						
LIST OF SIGNIFICANT SPILLS AND LEAKS				Completed by:						
				Title:						
				Date:						
Directions: Record below all significant spills and significant leaks of toxic or hazardous pollutants that have occurred at the facility in the three years prior to the effective date of the permit.										
Definitions: Significant spills include, but are not limited to, releases of <u>oil</u> or <u>hazardous substances in excess of reportable quantities</u> .										
Date (month/day/year)	Spill	Leak	Location (as indicated on site map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	
4/91	✓		183-H solar basin	H2 diesel	25 gal.					
8/91	✓		3703-H	gasoline	6 oz.					
2/93	✓		105-H Building	ethylene glycol	2.5 gal.					

Table C-6. List of Significant Spills and Leaks for the 100-F Area.

100-F AREA				Worksheet #						
LIST OF SIGNIFICANT SPILLS AND LEAKS				Completed by:						
				Title:						
				Date:						
<p>Directions: Record below all significant spills and significant leaks of toxic or hazardous pollutants that have occurred at the facility in the three years prior to the effective date of the permit.</p>										
<p>Definitions: Significant spills include, but are not limited to, releases of <u>oil</u> or <u>hazardous substances</u> in excess of reportable quantities.</p>										
Date (month/day/year)	Spill	Leak	Location (as indicated on site map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	
11/91		✓		lead dioxide balls	1 lb.					

Table C-7. List of Significant Spills and Leaks for the 300 Area.

300 AREA				Worksheet #						
LIST OF SIGNIFICANT SPILLS AND LEAKS				Completed by:						
				Title:						
				Date:						
Directions: Record below all significant spills and significant leaks of toxic or hazardous pollutants that have occurred at the facility in the three years prior to the effective date of the permit.										
Definitions: Significant spills include, but are not limited to, releases of <u>oil</u> or <u>hazardous substances in excess of reportable quantities</u> .										
Date (month/day/year)	Spill	Leak	Location (as indicated on site map)	Description				Response Procedure		Preventive Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	
None Reported										

C-8

WHC-SD-EN-EV-021, Rev. 1

APPENDIX D

STATUS REPORT ON IMPLEMENTATION OF HANFORD SITE SWPPP

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author

Addressee

Correspondence No.

J. E. Turnbaugh, 372-0863

J. D. Bauer, RL

9358372

Subject: STATUS REPORT ON IMPLEMENTATION OF HANFORD SITE STORM WATER POLLUTION PREVENTION PLAN

INTERNAL DISTRIBUTION

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		K. A. Gano	X0-21	X
		E. R. Hamm	S4-64	X
		G. W. Jackson	H6-21	
		A. D. Krug	H6-02	X
		D. E. Kelley	R1-48	
		J. R. Kelly	R3-28	
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		R. E. Lerch	B3-63	
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		H. E. McGuire	B3-63	
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		T. B. Veneziano	L4-96	
		D. J. Watson	X0-41	X
		B. D. Williamson	B3-15	X
		EPIC	H6-08	X
		JET/File/LB	H6-25	X
		D. J. Carrell	H6-22	X

X *El Hamm* 10/14/93

X *CR Krug* 10/14/93

X *T. J. Landon* 10/20/93

X *R. L. Newell* 10/14/93

X *Donald H. Oldham* 10/25/93

X *J. E. Turnbaugh* 10/20/93

X *Robert J. Watson* 10/14/93

X *Stanell* 10/14/93

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

November 10, 1993

9358372

Mr. J. D. Bauer, Program Manager
Office of Environmental Assurance,
Permits, and Policy
U.S. Department of Energy
Richland Operations Office
Richland, Washington 99352

Dear Mr. Bauer:

STATUS REPORT ON IMPLEMENTATION OF HANFORD SITE STORM WATER POLLUTION PREVENTION PLAN

The purpose of this letter is to document the status and progress to date of implementation of the Hanford Site Storm Water Pollution Prevention Plan (SWPPP).

The U.S. Department of Energy, Richland Operations Office (RL) has applied for coverage of the Hanford Site under the U.S. Environmental Protection Agency (EPA), Region 10 general storm water permit (WA-R-00-000F, Permit) as a means of complying with the federal storm water rules. The Hanford Site SWPPP (WHC-SD-EN-EV-021, Rev. 0, SWPPP) was prepared as required by April 1, 1993. The Permit also required implementation of the SWPPP by October 1, 1993.

Disposition of Potential Outfalls Identified in the Hanford Site SWPPP

The SWPPP identified 87 potential storm water outfalls to the Columbia River in the 100 and 300 Areas. A Storm Water Pollution Prevention Team (Team) was organized as required by the Permit to study the identified outfalls and determine their appropriate disposition under the storm water rules. The Team researched the potential outfalls, identified those that could actually be outfalls and inspected them in the field to determine their disposition. Team members representing the 100 and 300 Areas then summarized the appropriate actions that were taken on each of the outfalls. Their reports are enclosed with this letter.

Two additional potential outfalls were identified by the Team in the 100 Area. These sites are known as the 116-B-7 Outfall Structure and the 116-D-5 Outfall Structure, respectively. These additional sites will be dispositioned in Fiscal Year (FY) 1994.

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Mr. J. D. Bauer
Page 2
November 10, 1993

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Certification of Outfalls for Non-Storm Water Discharges

The outfall disposition process was not completed in time to achieve certification that the few actual outfalls do not contain non-storm water discharges. The Permit requires non-storm water certification by October 1, 1993 and further requires notification to the EPA if certification is not achieved. A letter was prepared for RL to forward to the EPA to fulfill the permit notification requirement.

- Actions to be Accomplished in FY 1994

Work in FY 94 will focus on revising the SWPPP, certifying the storm water outfalls that require certification and establishing internal procedures for periodic inspection and monitoring, if necessary.

Summary

At this time, there appears to be only one site that can be considered a regulated storm water outfall under the Hanford site-wide general storm water permit. That outfall drains storm water from Pacific Northwest Laboratories (PNL) Buildings in the 300 Area and is designated A-1 in Table A-13 of the SWPPP. PNL has asserted that this outfall should be exempt, because their operations are not classified as "industrial" within the meaning of the storm water rules. However, the Hanford Site storm water general permit is a site-wide permit and does not recognize differences between individual buildings and activities on the site with regard to storm water regulation. This issue will be resolved in FY 1994.

Should you have any questions, please contact Mr. J. J. Luke of my staff on 376-8629.

Very truly yours,

G. W. Jackson, Manager
Regulatory Support
Restoration and Remediation

ikt

Enclosures 5

RL - C. C. Haass
R. O. Puthoff (w/o enclosure)
R. P. Saget

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Enclosure 1
9358372

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Westinghouse
Hanford CompanyInternal
Memo

From: 100 Area Remedial Investigation
 Phone: 376-5634 H6-02
 Date: September 2, 1993
 Subject: 100 Area Stormwater Runoff Sites

81310-93-029

To: J. E. Turnbaugh H6-25

cc: M. R. Adams H6-01
 R. P. Henckel H6-02
 N. M. Naiknimbalkar H6-02
 J. K. Patterson H6-27
 J. W. Roberts H6-02
 ADK LB H6-02
 EPIC H6-08

I have reviewed the 100 Area sites identified in the Hanford Site Stormwater Pollution Prevention Plan as potential pollution sources and conducted a field visit to the sites. Seventeen of these sites can be considered as part of the 100 Area CERCLA/RCRA Past Practice. Eleven of these sites require no action because there were no sources of contamination and/or there were no pathways to the river. Three sites require a management action and three sites may require field action after evaluation of the results of a surface radiation survey. The following recommendations are made for these sites:

B Area

Site A-1: No action because there is no source of contamination .

Site B-2: Conduct a surface radiation survey to assess possible surface contamination. If no surface contamination is found, take no action. If surface contamination is found, remove it or construct a berm to prevent surface runoff from crossing this area and reaching the river.

Site C-3: Conduct a surface radiation survey to assess possible surface contamination. If no surface contamination is found, take no action. If surface contamination is found, remove it or construct a berm to prevent surface runoff from crossing this area and reaching the river.

N Area

Site A-1: No action because there is no pathway to the river.

Site A-2: Management action should be taken to prevent snow piles from accumulate at the top of the embankment.

Site A-3: Management action should be taken to prevent snow piles from accumulating at the top of the embankment.

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J. E. Turnbaugh
Page 2
August 2, 1993

81310-93-029

Site A-4: Management action should be taken to prevent snow piles from accumulating at the top of the embankment.

D Area

Site A-1: No action because there is no source of contamination.

Site B-2: Conduct a surface radiation survey to assess possible surface contamination. If no surface contamination is found, take no action. If surface contamination is found, remove it or construct a berm to prevent surface runoff from crossing this area and reaching the river.

H Area

Site B-2: No action because there is no pathway and no source of contamination.

Site D-4: No action because there is no source of contamination.

Site E-5: No action because there is no source of contamination.

Site K-12: No action because there is no pathway and no source of contamination.

F Area

Site B-4: No action because there is no source of contamination.

Site F-9: No action because there is no source of contamination.

Site G-10: No action because there is no pathway and no source of contamination.

Site G-11: No action because there is no source of contamination.

Tables 1-5 summarize the results of the field visit and the rationale for the recommendations.

If you have any questions or need additional information, please contact me on 376-5634.

A. D. Krug
Stormwater Pollution Prevention Team

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B/C AREAS

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
A	1	<p>100-BC-1 Operable Unit: The site was incorrectly identified in the SWPPP as "132-C-2 Outfall". It is actually the "116-C-4 Outfall". There is no known surface contamination in the area. Figures 1 & 2.</p> <p>No action is proposed because there is no source of contamination.</p>
B	2	<p>100-BC-1 Operable Unit: The site is incorrectly identified in the SWPPP as "132-B-6". It is actually the "116-B-8 Outfall", formerly known as 1904-B. On the terrace, above the riprap, is a 30' x 30' area chained and posted as "Surface Radiation". This site is not identified in the Quarterly Environmental Radiological Survey Summary (WHC-SP-0665-9) as a "Surface Contamination" area and its actual status is uncertain.</p> <p>A resurvey has been requested to evaluate its status. If the site is found to have no surface contamination, no action is planned. If the "Surface Contamination" posting is valid, two options will be considered: 1) remove the surface contamination and 2) construction of a berm to prevent runoff from reaching the river.</p>
C	3	<p>100-BC-1 Operable Unit: This is the site of the "116-B-7 Outfall". At the top of the bank, above the flume is the concrete outfall structure. This is fenced and posted as "Surface Contamination". This site is not identified in the Quarterly Environmental Radiological Survey Summary (WHC-SP-0665-9) as a "Surface Contamination" site and its actual status is uncertain. The configuration of the outfall structure is such that stormwater coming in contact with the interior of the structure would not overflow to the bank and reach the river. A resurvey has been requested to evaluate the "Surface Contamination" status.</p> <p>No action is planned because there is no pathway for possible surface contamination to reach the river.</p>

D/DR AREAS

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
A	1	<p>100-DR-1 Operable Unit: The site is identified as the 116-DR-5 outfall structure. There is no source of contamination which storm runoff can carry to the river. Figure 5.</p> <p>No action is planned because there is no source of contamination.</p>
B	2	<p>100-DR-1 Operable Unit: This is identified as the 116-D-5 Outfall, formerly called 1904-D. The SWPPP incorrectly identifies the concrete outfall structure as being fenced and posted as "Surface Contamination". The actual posting is "Underground Radioactive Material". There is no source of contamination which storm runoff can carry to the river. Figure 6.</p> <p>No action is planned because there is no source of contamination.</p>

N Area

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
A	1	<p>100-NR-1 Operable Unit: This site is a former sump, used to intercept diesel fuel from a large spill. The configuration of the site is such that stormwater runoff would enter the sump, rather than move from the sump to the river. Figure 3.</p> <p>No action is planned because there is no pathway to river.</p>
A	2	<p>100-NR-1 Operable Unit: Erosion was caused at this site by an excess of snow (from snow removal actions) which was moved to the terrace and allowed to melt. This was an unusual happening because of the record snowfall. Figure 4.</p> <p>No action is planned because a management action has been taken to prevent the snow accumulation at the top of the terrace.</p>
A	3	<p>100-NR-1 Operable Unit: Erosion was caused at this site by an excess of snow (from snow removal actions) which was moved to the terrace and allowed to melt. This was an unusual happening because of the record snowfall. Figure 4.</p> <p>No action is planned because a management action has been taken to prevent the snow accumulation at the top of the terrace.</p>
A	4	<p>100-NR-1 Operable Unit: Erosion was caused at this site by an excess of snow (from snow removal actions) which was moved to the terrace and allowed to melt. This was an unusual happening because of the record snowfall. Figure 4.</p> <p>No action is planned because a management action has been taken to prevent the snow accumulation at the top of the terrace.</p>

H AREA

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
B	2	<p>100-HR-3 Operable Unit: This site is a river stage recorder with an electronic cable encased in a pipe. The pipe noted in the SWPPP is to shield the cable and does not conduct stormwater runoff into the river. Figure 7.</p> <p>No action is planned because there is no pathway to the river nor is there a source of contamination.</p>
D	4	<p>100-HR-1 Operable Unit: This is the site of the 116-H-5 Outfall. There is no source of contamination at this site and it is not posted. Figure 8.</p> <p>No action is planned because there is no source of contamination.</p>
E	5	<p>100-HR-1 Operable Unit: This is the site of the 116-H-5 Outfall. There is no source of contamination at this site and it is not posted. Figure 9.</p> <p>No action is planned because there is no source of contamination.</p>
K	12	<p>100-HR-3 Operable Unit: This site is a seep monitoring recorder with an electronic cable encased in a pipe. The pipe noted in the SWPPP is to shield the cable and does not conduct stormwater runoff into the river. Figures 10 & 11.</p> <p>No action is planned because there is no pathway to the river nor is there a source of contamination.</p>

F AREA

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
B	4	<p>100-FR-2 Operable Unit: The concern at this site was the potential for run off from the 118-F-5 area to contaminate the river. The SWPPP incorrectly identifies the sight as being posted "Surface Contamination". It is actually posted as "Underground Radioactive Material". Buried waste at this site is covered by approximately 15' of clean material. Figure 12.</p> <p>No action is planned because there is no source of contamination.</p>
F	9	<p>100-FR-1 Operable Unit: This is the site of the 116-F-8 Outfall. There is no source of contamination at this site and it is not posted. Figure 13.</p> <p>No action is planned because there is no source of contamination.</p>
G	10	<p>100-FR-3 Operable Unit: This site is a river stage recorder with an electronic cable mounted on a concrete wall which is part of the 116-F-6 Outfall. The pipe noted in the SWPPP is to shield the cable and does not conduct stormwater runoff into the river. The reference to Outfall "K" should be to 116-F-6. Figures 14, 15 & 16.</p> <p>No action is planned because there is no pathway to the river, nor a source of contamination.</p>
G	11	<p>100-FR-1 Operable Unit: This is the site of the 116-F-6 Outfall. There is no source of contamination at this site and it is not posted. Figures 14 & 16.</p> <p>No action is planned because there is no source of contamination.</p>

Enclosure 2
9358372

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Westinghouse
Hanford CompanyInternal
Memo

From: 100 Area Remedial Investigation
Phone: 376-5634 H6-02
Date: September 8, 1993
Subject: Additional 100 Area Stormwater Runoff Sites

81310-93-030

To: J. E. Turnbaugh H6-25

cc: M. R. Adams H6-01
R. P. Henckel *RP* H6-02
N. M. Maiknimbalkar H6-02
J. K. Patterson H6-27
J. W. Roberts H6-02
ADK LB File H6-02
EPIC H6-08

While reviewing the 100 Area sites identified in the Hanford Site Stormwater Pollution Prevention Plan as potential pollution sources and conducting a field visit to the sites, I observed two additional sites which may need to be considered as potential pollution sources. These sites are known as the 116-B-7 outfall structure and the 116-O-5 outfall structure, respectively. Both concrete structures, which are uncovered, channel rain water into the river via an underground pipe system. Given the original use of the outfall structures to channel reactor process effluent water to the river, there is the likelihood that this pathway has surface radioactive contamination.

I recommend that a cover be placed over each of the structures to prevent rainwater from entering the structures. This will eliminate the pathway and the sites will no longer be of potential concern.

If you have any questions or need additional information, please contact me on 376-5634.

A. D. Krug

A. D. Krug
Stormwater Pollution Prevention Team

ctf

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Enclosure 3
9358372

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Westinghouse
Hanford CompanyInternal
Memo

From: Environmental Safety
Phone: 373-3239 X0-41
Date: September 13, 1993
Subject: STORM WATER POLLUTION PLAN

93DJWSKV.001

To: J. E. Turnbaugh H6-25

cc: K. A. Gano X0-21
R. J. Gimera X0-57
G. S. Hunacek X0-41
M. A. Mihalic R2-77
R. R. Morton R2-77
R. A. Toher X0-41
DJW File/LB

A Storm Water Pollution Plan (Plan) has been prepared for the Hanford Site. In this Plan N Reactor had twenty-seven identified potential storm water discharges that could reach the Columbia River. Corrective actions identified in the Plan were to either eliminate the source or provide monitoring for these remaining sources.

By plant walk-downs, data searches and data confirmation all twenty-seven discharges identified in the Plan were determined not to be discharging to the river. Some point source from pipes were identified as non-operational and ground water run-off was identified as not capable of reaching the river.

This information is presented in the attached Storm Water Pollution Plan for 100 N Reactor Plant.

Should you have any questions please contact myself or G. S. Hunacek of my staff on 373-1673.

D. J. Watson, Manager
Environmental Safety

skv

Attachment

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**Storm Water Pollution
Prevention Plan
For 100 N Reactor Plant**

Prepared by:

R. A. Toher

APPROVED:

D. J. Watson

T. H. Gronewald

R. A. Trevinn

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EXPLANATORY NOTES
for
REMEDIAL ACTIONS
FOR POTENTIAL STORMWATER
POLLUTION POINTS
at
100-N REACTOR PLANT

These notes present the extent and the results of the investigations to determine whether the potential drainage points at 100-N Reactor Plant identified in the "Hanford Site Stormwater Pollution Prevention Plan" WHC-SD-EN-EV-021, Revision 1, actually introduce pollutants to the Columbia River. Many of these points were initially included based on initial observations with little follow-up investigation. Cognizant engineering and operating personnel were assigned to examine each point and to determine whether a stormwater pollution point exists and to define what corrective action would be necessary to eliminate the pollution source.

Investigation

The investigations involved three activities:

1. Walkdowns

Six walkdowns were conducted. The first two were to familiarize the participants with the physical locations of the "General Discharge Points". Two involved the tracing of pipes to their origin to determine their use and the operational status of the system involved. The last two examined erosion points with emphasis on those where the Plan indicated potential radiological contamination.

2. Data Searches

Pertinent sheets of Drawing H-1-45007, Composite Underground Lines. 83 sheets, particularly sheets 9,10,16,17,30,31,43,44, 51, 58, and 64 which cover the areas described in the Plan, were used identify the piping outfalls.

Radiation Survey Reports Nos. 12864 and 151463 which fully describe the areas which were of concern in the Plan.

Contamination Control Improvement Project Database Upgrade Report for the first quarter of 1993, document number (33650-93-REE-006) dated March 4, 1993 which documents the location and dose rate for all outdoor contaminated areas at N-Plant.

3. Data Confirmation

Meetings with System Engineers and Operations Managers were held to confirm the configuration and operating status of related piping

systems. In addition, meetings were held with Health Physics personnel who provided the required interpretation of their surveys and Waste Management personnel who confirmed the status of radiological waste remaining at the areas.

Results

The investigations provided favorable findings associated with the plant in three areas of concern which might have allowed pollutant laden storm water runoff into the Columbia River. These are:

1. Outdoor Radiological Contamination

The surface contamination area (SCA) at the south end of the perimeter fence is not contaminated with windblown radioactive material. The area was posted because of deer and rabbit droppings which bio-degrade. The residual material is adsorbed into the ground and stabilized. This finding is further verified in that radiological material was not found on the river road below the bank.

The SCA near the 1304-N Emergency Dump Tank is also stabilized radioactive material. The down slope erosion area immediately west of the SCR is completely free of contamination.

2. Bank Erosion

The erosion points along the property protection perimeter security fence require repair although the storm runoff causing the erosion contains no pollutants. Further the runoff is trapped in a depression east of road and has no pathway to the river.

However, a request to Facility Management will be made to repair and maintain site contours to eliminate uncontrolled runoff.

3. Piping Outfalls

All piping outfalls projecting for the river banks have been identified either by inspection or reference to the underground utilities drawings. None are storm drains. All are process piping which are now abandoned and present no potential source of ground or storm water contamination.

One pipe identified as Figure A-3, Sheet 4 has not been located anywhere around the 182-N Building or the adjacent 1900-N Tank Farm. All of N-Plant water systems pipes are either steel or cast iron. However, since the 1900-N Tank Farm has been completely drained, no water source exists and there is no surface contamination in that area, the missing pipe can be discounted as a stormwater pollution source.

The piping relating to the 1304-N Emergency Dump Tank presents no stormwater pollution hazard. All of the piping is valved off and the tank itself has been drained.

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RECOMMENDATIONS

It is recommended the 100-N portion of the Stormwater Pollution Prevention Plan should state that no pollution source exist and that the Facility is being deactivated for eventual demolition.

Table A-5. Summary of the 100-N Area. (Sheet 1 of 5)

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Stormwater Pollutant Sources	Best Management Practice(s)
Figure A-3, Sheet 2	A	1	A sump previously used to burn diesel fuel accumulated during large spill. Currently dry, weedy, posted as radiological contamination area. Approximately 7 feet above river elevation.	Radiological contamination area.	No action required. No pathway to river.
Figure A-3, Sheet 2	A	2	Erosion point in terrace that drained to a sump or the riverbank. Posted radiological contamination zone.	Radiological contamination area.	No action required. No pathway to river.
Figure A-3, Sheet 2	A	3	Erosion point in terrace that drained to a sump or the riverbank. Posted radiological contamination zone.	None.	No action required. No pathway to river.
Figure A-3, Sheet 2	A	4	Erosion point in terrace that drained to a sump or the riverbank. Posted radiological contamination zone.	None.	No action required. No pathway to river.
Figure A-3, Sheet 2	B	5	12-in. capped pipe. Current status: unidentified.	None.	No action required. Abandoned process piping. No stormwater source.

Table A-5. Summary of the 100-N Area. (Sheet 2 of 5)

Map Reference No.	General Discharge Location to River	Potential Point Source	Description/Current Status	Stormwater Pollutant Sources	Best Management Practice(s)
Figure A-3, Sheet 2	B	6	Erosion point in terrace that drained to a sump or the riverbank. Posted radiological contamination zone.	Radiological contamination area	Terrace repaired and proper drainage path has been re-established. No pollutant source.
Figure A-3, Sheet 2	C	7	8-in. pipe had multiple connections. Previously used to pump diesel fuel from barges on River to 100-N storage tank. Current status: abandoned.	None.	No action required. Abandoned process piping. No pollutant source.
Figure A-3, Sheet 3	D	8	Erosion point in terrace that drained from the storage area to the riverbank.	None.	No action required. Described waste storage area on all regulations. No pollutant source.
Figure A-3, Sheet 3	E	9	Major erosion point in terrace that drained to riverbank. Potential drainage from adjacent waste storage, non-waste storage, and shipping area via local gutters. Dry well that drained this area was plugged, so overflow ran to this erosion point.	Area certified clean.	Erosion area repaired. No further action required. No pollutant source.
Figure A-3, Sheet 3	E	10	Erosion point in terrace that draining to riverbank.	Sediments	Erosion has been repaired and designed flow path has been re-established. No further action required.

Table A-5. Summary of the 100-N Area. (Sheet 3 of 5)

Map Reference No.	General Discharge Point to River	Potential Conveyance	Description/Current Status	Stormwater Pollutant Sources	Best Management Practices
Figure A-3, Sheet 3	"	11	2-in. pipe. Previously used in leak detection system for 1304-N tank. Status: abandoned. Frozen outfall (large tic/tic) indicates runoff. Per MHC ESN, inside of 1304-N was considered a radiological contamination zone.	Radiological contamination zone (pipe)	Abandoned process piping. No action required.
Figure A-3, Sheet 3	1	12	1 1/2-in. pipe. Previously used in leak detection system for 1304-N tank. Status: abandoned. Pipe was dry. Per MHC ESN, inside of 1304-N was considered a radiological contamination zone.	Asbestos-wrapped pipe radiological contamination zone.	Abandoned process piping. No action required.
Figure A-3, Sheet 3	1	13	6-in. pipe. Drain for 1304-N tank. Status: valve closed. Per MHC ESN, inside of 1304-N was considered a radiological contamination zone. Pipe was dry.	Radiological contamination zone (13)	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 3	6	14	flume for outfall from 1900-N diversion system to River. Current status: Outfall 000 has been discontinued and is no longer permitted under NPDES.	None.	No rain water source. Outfall abandoned. No action required.

Table A-5. Summary of the 100-N Area. (Sheet 4 of 5)

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Stormwater Pollutant Sources	Best Management Practice(s)
Figure A-3, Sheet 3	H	15	Pipe for discharge of 181-N/183-N backwash water to River. Current status: NPDES permitted outfall 007.	Monitored.	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	I	16	1-in. plastic pipe. Previously used as inlet for River water sampling. Current status: abandoned.	None.	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	I	17	2-in. iron pipe. Current status: unidentified.	None.	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	I	18	1/2-in. plastic pipe. Previously used as inlet for River water sampling. Current status: abandoned.	None.	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	I	19	12-in. culvert drained from south of 181-N to the riverbank. Current status: received drainage from terrace above drains and potentially from radiological contamination area near 1304-N.	None.	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	I	20	4-in. iron pipe. Status: unidentified.	Unknown.	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	I	21	4-in. iron pipe. Status: unidentified.	Unknown.	Abandoned process piping. No rain water source. No action required.

Table A-5. Summary of the 100-N Area. (Sheet 5 of 5)

Map Reference No.	General Discharge Location to River	Potential Point Source Conveyance	Description/Current Status	Stormwater Pollutant Sources	Best Management Practice(s)
Figure A-3, Sheet 4	I	22	2-in. iron pipe. Previously used for return line of sampling water received from River water sampling. Current status: abandoned.	None.	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	J	23	12-in. pipe with screen. Status: unidentified. WMC ESH postulated that these were drainage lines from 181-N.	None	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	J	24	12-in. pipe, capped. Status: unidentified. WMC ESH postulated that these were drainage lines from 181-N.	None.	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	J	25	12-in. pipe. Status: unidentified. WMC ESH postulated that these were drainage lines from 181-N.	None.	Abandoned process piping. No rain water source. No action required.
Figure A-3, Sheet 4	K	26	2 1/2-in. pipe. Current status: RWR from 182-N.	None.	Abandoned process piping. No rain water source. No action.
Figure A-3, Sheet 4	L	27	6-in. aluminum pipe. Current status: 182-N water tank system.	Unknown.	Abandoned process piping. No rain water source. No action.

Enclosure 4
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DISPOSITION OF OTHER 100 AREA POTENTIAL STORMWATER DISCHARGE OUTFALLS

B/C AREAS

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
D	4	Unused process wastewater discharge--no action required.
E	5	Improve housekeeping--not a point source conveyance of storm water

D/DR AREAS

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
C	3	Improve housekeeping--not a point source conveyance of storm water

K AREAS

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
A	1	No action. 320 meters from river, no source of contamination.
A	2	No action. 200 meters from river, no source of contamination.
B	3	No action, 150 meters from river, no source of contamination.
B	4	No action, 150 meters from river, no source of contamination.
C	6	NPDES permitted wastewater outfall.
C	7	Not a storm water discharge.
C	8	Pipe is capped at 105-KE per initial report.

D	5	No action, 100 meters from river, no source of contamination.
E	9	No action, 150 meters from river, no source of contamination.
F	10	No action, 160 meters from river, no source of contamination
F	12	Improve housekeeping to remove possible contamination sources. Asbestos abatement is scheduled for FY 94 in the 100 KW area.
F	13	The exact source of this pipe remains unknown. Given the inactive status of the 181-KE building (ie. no operating equipment), discharge from this pipe is highly unlikely
F	14	Capped at 105-KW, per the initial report.
G	11	No action, 120 meters from river, no source of contamination

H AREA

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
A	1	Believed to be a Hanford Irrigation District weir box left from the pre-Manhattan Project era. No surface or process source exists today.
C	3	Culvert draining the upland side of the adjacent road. No contamination evident in the area. No action.
E	5	Operable Unit 100-HR-1, no action, no contamination.
F	6	Culvert draining the upland side of the adjacent road. No contamination evident in the area. No Action.
G	7	Draining the upland side of the adjacent road. No contamination evident in the area. No Action.
H	8	Culvert draining the upland side of the adjacent road. No contamination evident in the area. No Action.

I	9	Believed to be an old storm water culvert from construction days(?). Given the inactive status and no process operations at 100-H, there appears to be no source that could discharge from this pipe.
J	10	No action, 40 meters from river, no source of contamination.
K	11	EFS to investigate, well labeled "9-6-88".
L	13	EFS to investigate, well labeled "99-42".

F AREA

GENERAL LOCATION	POINT SOURCE	STATUS / PROPOSED ACTION
A	1	No contamination is evident in the area. No Action.
B	2	No action, 200 meters from river, no source of contamination.
B	3	No action, 400 meters from river, no source of contamination.
B	4	No action, 400 meters from river, no source of contamination. Operable Unit 100-FR-1
C	5	No action, 180 meters from river, no source of contamination.
C	6	EFS to investigate, well labeled "F5-43A"
D	7	EFS to investigate, well labeled "F5-43B"
E	8	EFS to investigate, well labeled "F5-44"
F	9	Operable Unit 100-FR-1, no action, no source of contamination.
G	10	Operable Unit 100-FR-3, no action, river stage recorder.
G	11	Operable Unit 100-FR-i, no action, no source of contamination.
H	12	Given the inactive status and no process operations at 100-F, there appears to be no source that could discharge from this pipe.

H	13	Given the inactive status and no process operations at 100-F, there appears to be no source that could discharge from this pipe.
I	14	Plans in process to remove these pipes and material(?).
J	15	No source of contamination at this seldom-used boat ramp--not a point source.

Notes:

The boat ramp and storage buildings are managed by PNL--the Storm water Pollution Prevention Team toured the site and determined that it is excluded because there is no source of contamination present.

Enclosure 5
9358372

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Maintenance Environmental and Engineering Services

372-0310

September 22, 1993

300 AREA STORM WATER POLLUTION PREVENTIVE PLAN

Jerry Turnbaugh

cc: S. E. Dieterle R2-34
E. R. Hamm S4-64
ERH File/LB

The 300 Area outfalls and Potential Point Sources of storm water to the Columbia River have been identified, walked down and dispositioned (see attachment). One of the outfalls (A) is identified as a storm water outfall while the others (B through J) fall within the exemptions of the National Pollutant Discharge Elimination System (NPDES) industrial stormwater regulations and are not contaminated with any industrial or process pollutants.

E. R. Hamm
Manager

civ

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HANFORD POLLUTION PREVENTION PLAN DISPOSITION OF 300 AREA OUTFALLS

OUTFALL	DESCRIPTION/CURRENT STATUS	STORMWATER POLLUTANT SOURCES	MAP REFERENCE NUMBER	OUTFALL DISPOSITION
A	An underground pipe drains stormwater from the roadway area between the north side of Building 331-C and the south side of Building 331 to an open trench that runs east to west between Buildings 331-D and 331-E. The open trench drains to a culvert passing beneath a gravel roadway and the perimeter fence. The discharge is approximately 150 feet from the River. The bank is moderately sloped with natural vegetation.	Sediment and runoff from storage yards and loading docks.	Figure A-7 Sheet 2	Has natural berm at fence line and outside fence line. No erosion is evident on sloping bank. Outfall is identified as a stormwater outfall under the permit.
B	Located southeast of Building 331, a 15 in. diameter pipe in a drainage ditch would have allowed runoff from the paved parking area, which had a large gravel border, to drain to the river. The bank was moderately sloped with natural vegetation.	Paved Parking lot	Figure A-7 Sheet 2	Outfall B is in compliance with 40 CFR Chapter 1 (122.26), pages 88 & 89. See attached sheet for exclusion statement.
C	The discharge is included in the site NPDES permit and is identified as the "013 Outfall." The discharge point is located at the center of the spillway at the face of a concrete wall. The discharge drains to the river. The area is gently-to-moderately sloped with significant natural vegetation.	Monitored	Figure A-7 Sheet 2	Outfall is permitted by the NPDES permit and no action is required.
D	Stormwater from the paved parking located northeast of building 331 flows out a channeled opening in the concrete curb and drains onto a gravel area heading toward the River. The area is gently sloped with natural vegetation.	Paved parking lot	Figure A-7 Sheet 2	Outfall D is in compliance with 40 CFR Chapter 1 (122.26), pages 88 & 89. See attached sheet for exclusion statement.

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HANFORD POLLUTION PREVENTION PLAN DISPOSITION OF 300 AREA OUTFALLS

OUTFALL	DESCRIPTION/CURRENT STATUS	STORMWATER POLLUTANT SOURCES	MAP REFERENCE NUMBER	OUTFALL DISPOSITION
E	Stormwater runoff from the roadway and shoulder area east of Building 337 would have flowed to a storm drain and discharged from a 10 in. diameter pipe within 10 feet of the River. The area was moderately to steeply sloped with natural vegetation.	Paved roadway & graveled shoulder	Figure A-7 Sheet 3	Outfall E is in compliance with 40 CFR Chapter 1 (122.26), pages 88 & 89. See attached sheet for exclusion statement.
F	Stormwater runoff from the parking, roadway and shoulder area east of Building 337 would have drained to a large buried gravity sump that discharged out to a 2 ft. diameter exposed half-pipe to within 10 feet of the River. The area was moderately to steeply sloped with natural vegetation.	Paved parking & roadway	Figure A-7 Sheet 3	Stormwater does not drain to the large gravity sump. No action required.
G	Stormwater runoff from an area at the eastern end of Locust Street could flow over a rock and dirt area that slopes gently to the river. It appears that the area may have been intended to provide vehicle access to the River. Lower portions of the bank were covered with river rock and natural vegetation.	Paved road and ground (rock/dirt) area	Figure A-7 Sheet 3	Outfall G is in compliance with 40 CFR Chapter 1 (122.26), pages 88 & 89. See attached sheet for exclusion statement.
II	The river bank southeast of the 3614-A monitoring Station and the pumphouse for the 312 Intake Structure showed significant erosion. Stormwater from this area as well as from the dry sump on the west side of the roadway could flow toward the river. Erosion area was steeply sloped. The lower portion of the bank is gently sloped toward the river and is covered with natural vegetation.	Paved road & graveled shoulder	Figure A-7 Sheet 3	Outfall II is in compliance with 40 CFR Chapter 1 (122.26), pages 88 & 89. See attached sheet for exclusion statement.

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HANFORD POLLUTION PREVENTION PLAN DISPOSITION OF 300 AREA OUTFALLS

OUTFALL	DESCRIPTION/CURRENT STATUS	STORMWATER POLLUTANT SOURCES	MAP REFERENCE NUMBER	OUTFALL DISPOSITION
I	Located east of Buildings 3769 and 3770, a natural ravine slopes gently toward the River. Stormwater runoff from this area could flow through the ravine. Area is covered with rock and dirt as well as natural vegetation.	Paved road and graveled shoulder	Figure A-7 Sheet 3	Railroad ties were placed to reroute the flow to avoid erosion. Outfall I is in compliance with 40 CFR Chapter 1 (122.26), pages 88 & 89. See attached sheet for exclusion statement.
J	The outfall is an 8 in. diameter pipe that could discharge to the River bank. The bank is moderately sloped and is covered with natural vegetation.	Monitored	Figure A-7 Sheet 3	Unused process wastewater discharge. No action required.

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ATTACHMENT
DISPOSITION OF 300 AREA OUTFALLS

Reference: 40 CFR Chapter I, (122.26), Pages 88 & 89, section 14 provides the following definition for storm water discharge associated with industrial activity and a statement which identifies covering areas of exclusion.

Definition: Storm water discharge associated industrial activity means the discharged from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw material storage areas at an industrial plant.

Exclusion: The term excludes areas located on plant lands separate from the plant's industrial activities such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas.

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APPENDIX E

JUSTIFICATIONS FOR OUTFALL ELIMINATION FROM THE SWPPP

JUSTIFICATIONS FOR OUTFALL ELIMINATION FROM SWPPP

AREA	DISCHARGE LOCATION	POINT SOURCE	DESCRIPTION/STATUS	JUSTIFICATION
100-B, 100-C	D	4	A 12 in. diameter pipe extended from the east side of Building 181-B into the river.	The pipe is no longer in use. The discharge was determined to be unused(non-contact) process wastewater, and does/did not receive stormwater.
100-KE, 100-KW	B	4	Two tandem 91 centimeter (36 inch) pipes are present on north side of 1908-K outfall structure, elbowed and reaching to surface level. Per WHC operations, these were probably part of the overflow system that is no longer in use.	Pipes are approximately 150 meters (492 feet) from the river and are not stormwater discharges to the river.
100-KE, 100-KW	C	6	A 4 ft. by 4 ft. by 6 ft. basin was present on the deck of 181-KE pier with outfall thru a 24 in. pipe east and down to the river. The outfall was labeled Outfall 003.	Permitted under NPDES Permit No. WA-000374-3.
100-KE, 100-KW	C	7	A 3 inch diameter pipe with valve was located on the east side of 181 KE adjacent to the fence.	Not a stormwater conveyance.
100-KE, 100-KW	C	8	A 30 centimeter (12 inch) capped pipe from 105 KE Area is present that would drain near one of the major inlet pipes at 181-KE.	Pipe is capped.

AREA	DISCHARGE LOCATION	POINT SOURCE	DESCRIPTION/STATUS	JUSTIFICATION
100-KE, 100-KW	D	5	A stormwater runoff area was identified for the compacted soil of 181-KE access road. The flow would drain west down the slope then north to the river. This was the likely runoff point for potential contaminants from drums stored at this location.	The drums have been removed. There is not an erosion problem.
100-KE, 100-KW	F	14	A capped 12 inch pipe from 105-KE Area was present that would drain near one of the major inlet pipes at 181-KW	Pipe is capped.
100-N	A	1	A sump (ditch) previously used to burn diesel fuel accumulated during a large spill. The site was posted as radiological contamination area.	During the proposed installation of the N-springs cutoff wall this area was regraded and the original trench destroyed. The area now slopes away from the river. No cleanup was done on the area.
100-N	A	2,3,4	Erosion point on terrace that drained to sump (A,1) or the riverbank. Previously posted radiological contamination zone (currently not posted).	Erosion at this site was caused by an excess of snow which was moved to the terrace and allowed to melt. This was an unusual happening because of record snowfall. The terrace has been repaired and a proper drainage path has been re-established. Action has been taken to prevent snow accumulation in this area.
100-N	B	5	30 centimeter (12-inch) capped abandoned process pipe.	It is not a storm water source and is capped.

AREA	DISCHARGE LOCATION	POINT SOURCE	DESCRIPTION/STATUS	JUSTIFICATION
100-N	B	6	Erosion point in terrace that drained to a sump (A,1) or the riverbank. Posted radiological contamination area.	Terrace has been repaired and proper drainage path has been re-established by a berm of fill material that will retain potentially contaminated runoff on the terrace.
100-N	C	7	20 centimeter (8-inch) pipe had multiple connections. Intended to be used to pump diesel fuel from barges on the river to 166-N storage tank.	This is not a storm water source. The pipe is abandoned.
100-N	H	15	Pipe for discharge of 181-N/183-N backwash water to river.	Outfall 007 under NPDES permit No. WA-000374-3.
100-H	B	2	This site is a river stage recorder with an electronic cable encased in the 5 centimeter (2-inch) diameter pipe.	The pipe shields the cable and does not conduct stormwater runoff into the river.
100-H	K	11	A five centimeter (two inch) diameter pipe extends into the river from a capped monitoring well (labeled "9-6-88"). A 91 centimeter (three foot) square concrete pad surrounds the monitoring well at ground level. The pipe is attached to the concrete pad on the northwest side.	Not a point of discharge. No source of contamination. Purpose of pipe will be determined/reported in 1996 Hanford Storm Water Comprehensive Site Compliance Evaluation Report.
100-H	K	12	This site is a river stage recorder and/or weather/monitoring station with an electronic cable encased in a 5 centimeter (2-inch) diameter pipe entering the river.	The pipe shields the cable and does not conduct stormwater runoff into the river.

AREA	DISCHARGE LOCATION	POINT SOURCE	DESCRIPTION/STATUS	JUSTIFICATION
100-F	A	1	An open 25 centimeter (10-inch) diameter pipe is present with no visible outfall. The surrounding area was reported to be covered with black pea gravel over black tarp liner. There is a small area with black plastic staked down which appears to be a cross for aerial surveys. No moderately built up area was apparent.	The pipe appears old. The adjacent black plastic appears unrelated. The area is remote and the pipe does not have an outfall. Not a source of stormwater.
100-F	B	2	An open 15 centimeter (6-inch) diameter pipe extends vertically from the ground and has a log jammed in its opening. During the 1995 inspection the pipe could not be located.	The pipe could not be located in the annual May 1995 inspection nor could it be found in a September 1995 follow-up inspection. The pipe was reported to extend vertically from the ground. The area is remote and is 200 meters (656 feet) from the river. No evidence of an outfall exists.
100-F	B	3	A rusty dilapidated 55-Gal drum was present. The drum was open, lying on its side and appeared to contain dirt. The area was covered by natural vegetation and sloped gently toward the river.	The drum could not be located in the 1995 inspection. The area it was located in is 60 meters from a dry channel and hundreds of meters from the river. The drum, even if located, would not be a source for stormwater runoff.

AREA	DISCHARGE LOCATION	POINT SOURCE	DESCRIPTION/STATUS	JUSTIFICATION
100-F	I	14	Large concrete blocks and piping material were strewn on the steep rocky bank.	Concrete blocks and piping exist, but do not pose a stormwater runoff problem or a source of contamination.
300	C	3	This pipe discharged from the 331 Building Aquaculture Facility. This outfall results from non-industrial sources.	Permitted under NPDES Permit No. WA-000374-3, Outfall 013.
300	J	10	The discharge point is a lined lagoon that will receive filter backwash from the water treatment plant. The oufall is a 20 centimeter (8-inch) diameter pipe that runs from the lagoon to the river bank.	The pipe has been capped to prevent any discharge from the lagoon into the river. Scheduled to be removed in FY 1996.

APPENDIX F

STORMWATER GENERAL PERMIT COVERAGE NOTICE

U.S. Environmental Protection Agency
National Pollutant Discharge Elimination System (NPDES)
STORM WATER GENERAL PERMIT COVERAGE NOTICE

February 14, 1994

Dear Operator:

Your Notice of Intent (NOI) for the facility noted below has been processed by the U.S. Environmental Protection Agency. This facility is authorized to discharge storm water associated with industrial or construction activity under the terms and conditions imposed by EPA's NPDES storm water general permit issued for use in the state of Washington. Your facility's NPDES storm water permit number is WAR00A17F.

EPA's storm water general permit requires certain storm water pollution prevention and control measures, possible monitoring and reporting, and annual inspections. Among the conditions and requirements of this permit, you must prepare and implement a pollution prevention plan (PPP) that is tailored to your industrial or construction site. Enclosed is a summary guidance document designed to assist you in the development and implementation of your PPP. The summary is organized according to the phases of the pollution prevention planning process. A set of worksheets and an example of a pollution prevention plan are provided for your assistance. As a facility authorized to discharge under this storm water general permit, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

The information included on your NOI indicated that you are required to submit monitoring data for your facility's storm water discharges. Enclosed is monitoring and reporting guidance to assist you in the preparation of Discharge Monitoring Reports. If you have any questions regarding the specific monitoring requirements that apply to your facility, please contact the EPA Regional office with permitting authority for your State. A list of EPA Regional offices with phone numbers and address is included at the end of the enclosed guidance.

FACILITY:

Hanford Site

, WA
4633N, 11932W

OPERATOR:

Us Dept Of Energy-r1
Po Box 550
Richland, WA 99352-

If you have general questions concerning the storm water program, or need to obtain a copy of the permit, please call the Storm Water Hotline at (703) 821-4823.

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WHC-SD-EN-EV-021, Rev. 1

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DOE-RL/CCC

APPENDIX G

EPCRA CERTIFICATION

EPCRA CERTIFICATION

I, Lee K. Holder, a professional engineer with current registration in the State of Washington, have reviewed the document *Hanford Site Pollution Prevention Plan*, WHC-SD-EN-EV-021, Revision 1, as revised July 29 1996 with respect to the following facilities identified by the Westinghouse Hanford Company as being those subject to EPCRA Section 313: 183KE, 183N, 283KE, and 283W, and 315. Having examined these facilities, and being familiar with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Industrial Activity (Federal Register, Vol. 57, No. 175, September 9, 1992, pp. 41304 et. seq.), attest that, with respect EPCRA stormwater requirements for these facilities, this stormwater pollution prevention plan has been prepared in accordance with good engineering practices.

EXPIRES 8/5/98

Lee K. Holder
Aug 2 '96

WHC-SP-EN-EV-021, Rev.1

FIGURE 1
HANFORD SITE DRAINAGE MAP

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