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

NOV 24 1997

97-EAP-678

Mr. David S. Dougherty
Nuclear Waste Program
State of Washington
Department of Ecology
1315 West Fourth Avenue
Kennewick, Washington 99336-6018

Dear Mr. Dougherty:

STATE WASTE DISCHARGE PERMIT ST 4508 DRAFT POLLUTION PREVENTION AND BEST MANAGEMENT PRACTICES PLAN

The U.S. Department of Energy, Richland Operations Office (RL) is herewith submitting the draft State Waste Discharge Permit ST 4508 (Permit) Pollution Prevention and Best Management Practices Plan (Plan) to the State of Washington Department of Ecology (Ecology). Condition S5 of the Permit requires the draft Plan be submitted to Ecology for review and comment 180 days after the May 30, 1997, effective date of the Permit.

If you have any questions, please contact Alex Teimouri, of my staff, on 376-6222.

Sincerely,

James E. Rasmussen, Director
Environmental Assurance, Permits,
and Policy Division

JAN 1998
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EDMC

EAP:AET

Enclosure

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DEC 1997
Received By
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Draft
Pollution Prevention and Best Management Practices Plan for Hydrotest, Maintenance and Construction Discharges on the Hanford Site

August 1997

Science Applications International Corporation
3250 Port of Benton Blvd.
Richland, WA 99352

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CONTENTS

1.0 INTRODUCTION 1
1.1 Organization 2
1.2 Approach 2

2.0 HYDROTEST DISCHARGES 4
2.1 System or Component Testing 4
2.2 Development Testing 4

3.0 MAINTENANCE DISCHARGES 6
3.1 Drainage 6
3.2 Flushing 6
3.3 Washdown Activities 6

4.0 CONSTRUCTION DISCHARGES 8
4.1 Concrete Curing and Rinsate 8
4.2 Pressure Washing 8
4.3 Acid Etching 8

5.0 OTHER DISCHARGES 9
5.1 Hazardous Materials Management and Emergency Response (HAMMER) Training and Education Center Pond 9

6.0 BEST MANAGEMENT PRACTICES 10
6.1 Good Housekeeping 10
6.2 Preventive Maintenance 11
6.3 Inspections 11
6.4 Training 11
6.5 Records Management 12

7.0 PERMIT REQUIREMENTS 13
7.1 Discharge Quantity Limitations 13
7.2 Source Water Limitations 14
7.3 Discharge Location Limitations 15
7.4 Discharge Tracking 15
7.5 Record Keeping 16

8.0 PERMIT EXEMPTIONS 17

9.0 REFERENCES 18

APPENDIX A ..... A-i

APPENDIX B ..... B-i

LIST OF TABLES

Table 1-1. Summary of Discharges Covered under Permit ST 4508. 3
Table A-1. Checklist of BMPs for Hydrotest, Maintenance, and Construction Discharges. A-1
Table A-2. Checklist of BMPs for HAMMER Pond. A-3
Table B-1. Significant Discharge Log for State Waste Discharge Permit No. ST 4508 Hydrotest, M

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1.0 INTRODUCTION

On December 23, 1991, the U.S. Department of Energy, Richland Operations Office (RL) and the Washington State Department of Ecology (Ecology) agreed to adhere to the provisions of Department of Ecology Consent Order No. DE 91NM-177 (Consent Order) (Ecology and DOE 1991). The Consent Order lists regulatory milestones for liquid effluent streams at the Hanford Site to comply with the permitting requirements of Washington Administrative Code (WAC) 173-216, *State Waste Discharge Permit Program*, or WAC 173-218, *Washington Underground Injection Control Program*, where applicable.

Hanford Site liquid effluent streams discharging to the soil column are categorized in the Consent Order as follows:

- Phase I Streams
- Phase II Streams
- Miscellaneous Streams.

Phase I and Phase II Streams are addressed in two RL reports: *Plan and Schedule to Discontinue Disposal of Contaminated Liquids into the Soil Column at the Hanford Site* (DOE-RL 1987), and *Annual Status of the Report of the Plan and Schedule to Discontinue Disposal of Contaminated Liquids into the Soil Column at the Hanford Site* (Stordeur 1988). There were originally 33 Phase I and Phase II Streams; however, some of the streams have been eliminated. Miscellaneous streams are those liquid effluent streams discharged to the ground that are not categorized as Phase I or Phase II Streams. Source waters of miscellaneous streams originate directly from the Columbia River, from treated Columbia River water, or from groundwater. Miscellaneous streams result primarily from source water used in processes such as cooling, hydrotesting, and steam generation. Miscellaneous streams also occur through the use of these source waters for maintenance and construction activities such as draining, flushing, and washing.

Miscellaneous streams discharging to the soil column on the Hanford Site are subject to the requirements of several milestones identified in the Consent Order (Ecology and DOE 1991). The *Plan and Schedule for Disposition and Regulatory Compliance for Miscellaneous Streams* (DOE-RL 1994) provides a plan and schedule for the disposition of miscellaneous streams to satisfy one of the Consent Order requirements (in Section 6). A second commitment established in the plan and schedule (Activity 6-2.2) is to submit a categorical WAC 173-216 permit application for hydrotest, maintenance, and construction waste water. The *State Waste Discharge Permit Application, Hydrotest, Maintenance, and Construction Discharges* (DOE-RL 1995) was submitted to the Washington State Department of Ecology (Ecology) in November 1995. Ecology issued State Waste Discharge Permit No. ST 4508 on May 30, 1997.

Permit ST 4508 defines what discharges are covered and the associated requirements of the permit. In addition, Section S5 of the permit states, "The permittee shall develop and

implement a pollution prevention and best management practices (BMP) plan for all discharges covered by this permit. This plan shall provide guidance on appropriate handling of hydrotest, maintenance, and construction discharges on the Hanford Site. The plan should state the permittee's policy on the discharges and be usable as a training document for all employees involved in hydrotest, maintenance, and construction discharges." This document constitutes the pollution prevention and BMP plan.

1.1 Organization

The Pollution Prevention and Best Management Practices Plan is divided into sections that address all technical requirements of Permit ST 4508. The permit should be referred to directly for guidance on, and compliance with administrative requirements.

Hydrotest, maintenance, construction, and other relevant discharge processes covered by the permit, and guidance on handling these discharges, are presented in Sections 2.0, 3.0, 4.0, and 5.0, respectively. Section 6.0 describes some general pollution prevention methods and best management practices, and why these methods and practices are effective in preventing groundwater contamination. Section 7.0 contains the permit requirements for all discharges and the permittee's policy on the discharges. Section 8.0 describes categories of miscellaneous streams that are exempt from the requirements of Permit ST 4508 and this plan. Section 9.0 cites references used in the preparation of this document. Appendix A contains summary tables of best management practices for each of the processes covered by the permit and this plan. Appendix B contains a log form to track significant discharges.

This document is separate from the *Miscellaneous Streams Best Management Practices (BMP) Report* (DOE-RL 1996). The Miscellaneous Streams BMP Report was written specifically to evaluate miscellaneous streams that were potentially contaminated as defined by three criteria: (1) streams discharging to surface contaminated areas; (2) potentially contaminated streams, and (3) streams discharging near cribs, ditches or trenches. Each stream meeting any of these criteria was evaluated to determine a method or best management practice to minimize the impact on groundwater.

1.2 Approach

Hydrotest, maintenance, and construction discharges were identified based on specific activities. The summary of discharges identified for this plan are provided in Table 1-1. Descriptions of the discharge processes are provided in Sections 2.0 through 5.0.

Table 1-1. Summary of Discharges Covered under Permit ST 4508.

Hydrotest	Maintenance	Construction	Other
System or Component Testing	Drainage	Concrete Curing and Rinsate	HAMMER Pond
Development Testing	Flushing	Pressure Washing	
	Washdown Activities	Acid Etching	

In addition to Hanford Site contractors, several industrial agencies were contacted for recommendations and guidance in preparing this plan. Documents obtained from the contacts; i.e., from the office of King County Surface Water (Ecology 1992), Environmental Protection Agency (EPA 1992), and Ecology (Ecology 1995), contained good information but did not provide BMP guidance relevant to Hanford's permitted hydrotest, maintenance, and construction waste water discharge activities. The Associated General Contractors *Waste Disposal & Erosion/Sediment Control Methods* (AGC 1990) and EPA's National Pollutant Discharge Elimination System (NPDES) related activities, as described in the *Guidance Manual for Developing Best Management Practices (BMP)* (EPA 1993), provided information that is appropriately referenced in this document.

2.0 HYDROTEST DISCHARGES

Hydrotesting is the process of testing the integrity of systems or components (i.e., tanks, pipes, or pumps). Examples of hydrotest processes that involve waste water discharge are system or component testing and development testing. These two hydrotesting processes are described in the sections below. A checklist of BMPs for hydrotest discharges is provided in Table A-1.

2.1 System or Component Testing

System or component testing is performed by methods such as measuring static pressure drops or by applying pressure to check only for leaks, not drops in pressure. Measuring static pressure is accomplished by filling the tanks or pipes with any of the approved source waters and applying hydrostatic pressure on the tank or pipe. Then, with all valves or clamps closed off, observation will detect any drop in the measured pressure in the tank or pipe. A drop in pressure indicates a weakness in the pipe or tank walls. When the testing is complete, the valve or clamp is opened and water is allowed to discharge to the soil column. This process can also be applied to valves and fittings to determine their susceptibility to leaks and spills.

Hydrotesting is usually performed as part of acceptance testing during construction of a new facility, but it can also be done during routine integrity testing, upgrading, troubleshooting, or repairing of an existing system. Examples of different types of standard testing practices include but are not limited to: acceptance testing, qualification testing, pre-operational testing, operational testing, and production/process testing.

2.2 Development Testing

Development testing is performed to provide or develop design information, concepts, or criteria. Development testing may also be performed to calculate and verify design, safety, or reliability concepts or criteria. It may also be performed to develop performance characteristics through the use of mock-ups or test facilities, to study and research activities, and to develop engineering specification requirements and specific design objectives, or to resolve engineering or technological issues. These discharges are typically of potable or raw Columbia River water, groundwater or demineralized water that may have some specific material added. Examples of development testing are tracer studies and experimental discharges described in the following.

- **Tracer Studies.** Tracer studies are used to determine the routing of piping systems. It is often necessary to perform tracer studies when performing water balance studies, mapping flow systems, and verifying drawings or existing flow maps. Typically, these studies are performed by flooding a system with water and adding a marker (either a dye, or anion such as bromide, or chloride). Positive pressure is applied to the system, and samples are taken at various locations considered downstream. If sample analysis results are positive, the location is verified.

- **Other Experimental Discharges.** This category may include other discharges related to experimentation or research. For example, experimental discharges from Electrical Resistance Tomography (ERT) and the Hydraulic Test Bed may be included. The purpose of the ERT research is to detect leaks in underground tanks by injecting raw or potable water with a sodium chloride tracer into the ground and measuring the electrical resistance between the electrodes. The purpose of the Hydraulic Test Bed test is to evaluate retrieval technologies from stimulants consisting of bentonite and kaolin solutions. Water generated from these tests contains a high solids content and is not acceptable for discharge to existing sewer systems. This water is discharged directly to the ground and allowed to evaporate or percolate.

3.0 MAINTENANCE DISCHARGES

Maintenance activities often produce waste water discharges. These discharges are normally performed during routine maintenance tasks, and may consist of potable or raw water from the Columbia River or potable water from groundwater wells. Discharges may also be performed as a part of facility and system deactivation activities. For example, reservoirs and pipe systems may be flushed with clean water and then deactivated. Examples of maintenance discharges on the Hanford Site are described below. A checklist of BMPs for maintenance discharges is provided in Table A-1.

3.1 Drainage

Periodically, reservoirs and pipe systems that hold water need to be drained in order to perform maintenance activities such as sealing repairs, upgrading a section of pipe, replacing valves or other components, rerouting the flow, or system deactivation/shutdown. Draining activities may occur at various filter basins, water tanks, sumps, or other related equipment.

3.2 Flushing

Flushing is the process of washing dirt and construction debris from the inside of piping, tanks, and other related equipment. This process requires only enough water to wash the debris from the inside of equipment. Water used for this process is visually monitored for cleanliness. Flushing is complete when the water visually appears clean. Raw water, groundwater or potable water is used for this process and is not allowed to come in contact with constituents that would cause the discharge to exceed 110 percent of the WAC 173-200 Groundwater Quality Criteria.

Flushing is also performed to disinfect potable water lines. Disinfection of potable water lines kills bacteria present inside the piping system. During disinfection activities, the water lines are filled with chlorinated water for up to two days, then after sample analysis shows no bacteria are present, the water is discharged to the ground. Disinfection precedes flushing, so only clean water is discharged. Disinfection may be performed during maintenance and construction activities.

3.3 Washdown Activities

Washdowns are performed periodically as maintenance activities. Washdowns include coal ramp washdown, road or building washdown and other similar activities. Small amounts of detergents are sometimes used to perform these activities.

- **Coal Ramp Washdown** - The ramp used to transport coal to the powerhouse requires washdown in order to keep the ramp working properly. Raw water is used to wash the ramp. The waste water is collected in sumps where the solids settle out and the pH is tested. The waste water is then pumped to the dry pond for disposal. This system will only be used until the powerhouse is shut down, which is currently projected for the end

of FY 99.

- **Pressure Washing** - It is often necessary to wash and clean parts or surfaces during maintenance activities. Pressure washing is used to clean a surface as preparation for applying special coatings; removing rust, dirt, and grit from parts prior to painting; and/or to prepare a surface for welding or bonding. Pressure washing is also used for general maintenance and facility cleaning. Potable or raw water is used for pressure washing. If detergents or additives are used, they should be minimized.

- **Road Washing** - The roads are washed down to remove salts, oil, and other miscellaneous debris. Potable or raw water is used for road washing, and sometimes detergents are used. If detergents or additives are used, they should be minimized.

- **Building Washing** - These activities may include general building cleaning, window cleaning, exterior maintenance, and other exterior building-related tasks. Raw or potable water is for building washing. If detergents or additives are used, they should be minimized.

4.0 CONSTRUCTION DISCHARGES

Examples of construction processes that involve waste water discharges include concrete curing, pressure washing, and acid etching. These processes are described below. A checklist of BMPs for construction discharges is provided in Table A-1.

4.1 Concrete Curing and Rinsate

To aid in the curing process, a concrete structure may be sprayed with water or a solution of water and a curing agent (generally wax or paraffin-based, although in some rare situations an epoxy-based agent is added). If only water is used to assist the curing, the concrete is covered in burlap and sprayed down with water. Water may drain off the edges of the concrete. If a curing agent is used, the solution is applied with a pressurized hand-sprayer to minimize the amount of solution used. In addition, concrete trucks and tools used for construction are cleaned and the rinse water is discharged onto the ground (AGC 1990).

4.2 Pressure Washing

It is often necessary to wash and clean parts or surfaces during construction activities. Pressure washing may be used to clean a surface as preparation for applying special coatings, removing rust, dirt, and grit from parts prior to painting, and/or to prepare a surface for welding or bonding.

4.3 Acid Etching

Acid etching may be used to etch concrete to accommodate a coating of paint or other special protective coatings inside or outside of buildings. In this process, water is added to the surface of the concrete. Then a 10 percent solution of 33 to 37 percent muratic acid or 15 percent solution of 60-80 percent phosphoric acid is spread onto the concrete. The rinse water is collected, the pH is tested, and, if indicated, lime is added to raise the pH to groundwater discharge standards. Sometimes a base such as tri-sodium phosphate is used to neutralize the material.

5.0 OTHER DISCHARGES

Discharges that do not appear to be in one of the categories of Permit St 4508, but are of similar quality and quantity to other covered discharges may be considered by Ecology for inclusion under the permit on a case-by-case basis. Currently, the only such discharge that has been approved for coverage under the permit is the training water pond at the HAMMER training facility.

5.1 Hazardous Materials Management and Emergency Response (HAMMER) Training and Education Center Pond

The training water pond at the HAMMER training facility discharges an estimated 1,000 gallons per day to the ground. The pond collects water that has been used during training activities and stores it for reuse. The source water is Richland city water (potable water) that is treated at the pond to control algae and bacteria growth, which maintains an acceptable quality for use in training activities. A checklist of BMPs for the HAMMER Pond discharge is provided in Table A-2.

6.0 BEST MANAGEMENT PRACTICES

BMPs as defined in WAC 173-200 are "schedules of activities, prohibition of practices, maintenance of procedures, and other management practices to prevent or reduce the pollution of groundwater of the state. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or water disposal, or drainage from raw material storage." The National Pollutant Discharge Elimination System (NPDES) guidance (EPA 1979) defines baseline BMPs as "those management practices generally considered to be good practices that are low in cost and are applicable to broad categories of industry and types of substances." According to the *Guidance Manual for Developing Best Management Practices (BMP)* (EPA 1993), "BMPs are inherently pollution prevention practices. Traditionally, BMPs have focused on good housekeeping measures and good management techniques intending to avoid contact between pollutants and water media as a result of leaks, spills, and improper waste disposal."

BMPs include but are not limited to: good housekeeping, preventive maintenance, inspections, records management, and training. Descriptions of these BMPs are based on the *Guidance Manual for Developing Best Management Practices(BMP)* (EPA 1993) and are provided in the following sections. The applicability and degree of each BMP will vary with each waste stream depending on the potential contaminants, volume of discharge, and the duration of discharge.

A checklist of appropriate handling practices for hydrotest, maintenance and construction discharges is provided in Appendix A, Table A-1. BMPs identified specifically for the HAMMER recycle pond are provided in Appendix A, Table A-2. The following sections provide general descriptions of BMPs and why they are important in protecting the quality of groundwater.

6.1 Good Housekeeping

Good housekeeping is essentially the maintenance of a clean, orderly work environment. Maintaining an orderly facility means that materials and equipment are neat and well-kept to prevent releases to the environment. Maintaining a clean facility involves the expeditious remediation of releases to the environment. Together, these terms, clean and orderly, define a good housekeeping program.

Examples of good housekeeping include: neat and orderly storage of bags, drums, and chemicals; prompt cleanup of spilled liquids to prevent significant runoff to surface water or infiltration to groundwater; sweeping, vacuuming, or other cleanup of chemical accumulations necessary to prevent them from reaching the environment; and provisions for materials stored or accumulated outdoors or situated in a location that could be released to the soil.

Maintaining employee support in good housekeeping is vital. Monitoring methods for maintaining good housekeeping practices include: regular housekeeping inspections by

supervisors and upper management; discussions of housekeeping at safety meetings and pre-job briefings; and publicity through posters, suggestion boxes, bulletin boards, slogans, or incentive programs.

6.2 Preventive Maintenance

Preventive maintenance is a method of periodically inspecting, maintaining, and testing equipment and systems to uncover conditions which could cause breakdowns or failures. Such breakdowns could result in significant discharges of chemicals to the environment. Adjustment, repair, or replacement of equipment will help prevent breakdowns and failures. An effective preventive maintenance program is important to prevent spills or releases.

A good preventive maintenance program may include: (1) identification of equipment or systems applicable to the program; (2) periodic inspections or tests of identified equipment and systems; (3) appropriate adjustment, repair, or replacement of equipment; and (4) maintaining records of applicable equipment and systems maintenance activities. Documentation on preventive maintenance may include: a list of procedures, an example of record keeping, a list of the principal systems applicable to the program, and directions for obtaining the records on any particular system.

6.3 Inspections

Inspections provide an ongoing method to detect and identify sources of actual or potential environmental releases. Inspections are important for process control and to ensure that procedures are properly implemented. Inspections should include equipment, systems, and plant areas identified as having the potential for significant discharges. The nature of chemicals handled, materials of construction, and site-specific factors including age, inspection techniques, and cost-effectiveness, should also be considered for inspection.

Typical inspections should include examination of pipes, pumps, tanks, supports, foundations, dikes, and drainage ditches. Inspections should also include examination for leaks, seepage, and overflows from land disposal sites such as spray fields, pits, ponds, lagoons, and landfills. Documentation should be kept to determine if changes in preventive maintenance or good housekeeping procedures are necessary.

6.4 Training

Employee training is a method to instill in responsible personnel an understanding of this plan including the reasons for developing the plan and the positive impacts of the plan. Specifically, personnel responsible for hydrotest, maintenance, and construction discharges should know why BMPs are necessary to protect the environment and know the types of BMPs that may be used for each process and related activities. This knowledge will assist those who plan and oversee the jobs to identify discharges that may affect groundwater. This plan, which addresses permit requirements and provides basic pollution prevention/BMP information, may be used as a training tool; e.g., required reading.

6.5 Records Management

Maintaining complete and accurate records for the prescribed retention period is important to avoid duplication of effort, to provide a basis for effective work planning, and to provide readily accessible data for reporting purposes. For example, records of pre-, during, and post-discharge measurements and samples may provide useful lessons learned information that can be considered when planning future discharges.

Good records management will assist with the administrative and regulatory aspects of compliance, as well as preserve the history of hydrotest, maintenance, and construction activities at Hanford. Record keeping requirements specific to Permit ST 4508 are described in Section 7.5.

7.0 PERMIT REQUIREMENTS

This section describes, individually, requirements that are specified in Permit ST 4508. Permit requirements and the associated permit number are in bold italics; additional guidance is provided for each requirement.

7.1 Discharge Quantity Limitations

In order for hydrotest, maintenance, and construction discharges to be covered by Permit ST 4508, the following conditions must be met:

S1.B.1 Each discharge must be less than 10 gallons per minute (gpm) averaged annually. This means that any single discharge greater than 5,292,500 gallons (10 gpm x 60 min x 24 hours x 365 days) is not covered by this permit. A single discharge is a continuous waste water stream discharging to the same location from the same process.

S1.B.2 Each discharge must be less than 150 gpm instantaneously. This means that the maximum flow rate for a single discharge must be less than 150 gpm at any one time. This is to allow time for the water to infiltrate into the soil and minimize erosion. An exception to this requirement is made for drinking water line flushing activities, which include:

- Opening hydrants to flush contaminants from drinking water lines.
- Flushing drinking water lines that have been sanitized by the addition of chlorinated water.
- Flow testing of drinking water lines.
- Flushing after hydrotesting of drinking water lines.

These activities will be allowed to exceed the 150 gpm limit for up to 20 minutes, but at no time will be allowed to exceed 1,000 gpm.

> NOTE: If a planned discharge cannot meet these two discharge limitations, but meets the WAC 173-200 Ground Water Quality Criteria, a written request may be submitted to Ecology for coverage of the discharge under this permit. The request must be submitted at least 10 work days prior to the planned discharge, and include the information specified in Special Condition S7.A. If the request is denied, a one-time application for a limited duration permit must be submitted for the discharge.

S2.A The total flow of all discharges covered by this permit shall not exceed the maximum daily flow of 2,000,000 gallons. This condition will be considered to be met as long as the flow total of all measured significant discharges is below 1,500,000 gallons per day. Special Condition S6 defines significant discharges as: a single discharge over 14,500 gallons in a 24-hour period or a single discharge over 50,000 gallons total in a calendar year.

S4.D Reasonable efforts shall be taken to prevent ponding due to discharge flow rates above

the expected soil infiltration capacity. Reasonable efforts may include selecting an appropriate discharge location, selecting an appropriate discharge rate, inspecting the discharge location during discharge for ponding, or any other appropriate efforts.

7.2 Source Water Limitations

S3 Source waters for hydrotest, maintenance, and construction activities must be one of the following:

- *Raw Columbia River water*
- *Potable water (treated Columbia River water or groundwater)*
- *Demineralized water (treated potable water).*

Raw water from the Columbia River has been filtered through a course screen, but has not been treated. The raw water is converted into potable water through conventional water treatment facilities located in the 100-K, 100-N, 200, and 300 Areas, as well as in the City of Richland. Groundwater (potable well water) is also used as a source water for Hanford Site activities. Demineralized water is generated by filtration followed by a mixed bed ion exchange, and is used to verify that discharge pumps are working properly.

These raw and potable source waters must maintain the quality as described in Tables 5-1 through 5-4 of the *State Waste Discharge Permit Application, Hydrotest, Maintenance, and Construction Discharges* (DOE-RL 1995). Although no sampling and analysis of source water is required by the permit, routine and effective operation of the potable water treatment plants do require monitoring of source waters.

S1.B.3 Each discharge must meet WAC 173-200 Ground Water Quality Criteria (GWQC). Discharges that are expected to have a contaminant that exceeds the GWQC solely because the source water has a contaminant that exceeds one or more of the GWQC would be covered by this permit.

Source water analytical information can be found in the *State Waste Discharge Permit Application, Hydrotest, Maintenance and Construction Discharges* (DOE-RL 1995). If BMPs are evaluated and followed, and an approved source water is used, this requirement will be met.

> **NOTE:** Refer to the permit application (DOE-RL 1995) for examples of acceptable analytical and sampling methods.

S5.A For discharges where the effluent is expected to exceed the GWQC or 110% of the contaminant level in the source water, the plan must specify how impacts to ground water quality will be prevented. Impacts to groundwater will be prevented by implementing the BMPs in Appendix A, Tables A-1 and A-2.

7.3 Discharge Location Limitations

S4.A No discharge shall be allowed within a surface contaminated area. Surface contaminated areas are defined as those near-surface soils contaminated with dangerous and/or radioactive wastes.

S4.B No discharge shall be allowed within 300 feet horizontal radius of a known active or inactive crib, ditch or trench. Cribs, ditches and trenches were used to dispose of effluents that may have contained dangerous and/or radioactive contaminants.

S4.C No discharge shall be allowed to affect an ecologically sensitive area. Discharges shall avoid or minimize impacts to areas where species of concern, as defined in the Hanford Site Biological Resources Management Plan (DOE/RL 96-02), are located. The reason "minimize" is indicated is because a species of concern could be a migratory bird and they can be located anywhere throughout the site. A minimizing action could be to conduct the discharge when the migratory birds are elsewhere.

S4.E No discharge shall be allowed to surface waters of the state. This includes lakes, rivers, ponds, streams, inland waters, wetlands, oceans, bays, estuaries, sounds and inlets per WAC 173-226. Facilities permitted to discharge waste water to surface waters of the state are regulated under the NPDES Permit and are excluded from this plan.

S4.F If the discharge meets the conditions of State Waste Discharge Permit ST 4502 for the 200 Area Treated Effluent Disposal Facility (TEDF), and the discharge is near a connection to the TEDF collection system, then all reasonable attempts should be made to discharge to the TEDF. Discharges to other permitted waste water treatment facilities may be performed if such a discharge is allowed under the other treatment facility's waste water discharge permit.

7.4 Discharge Tracking

S6 Significant discharges covered by Permit ST 4508 must be tracked. A significant discharge is any single discharge over 14,500 gallons in a 24-hour period or any single discharge over 50,000 gallons total in a calendar year. These significant discharges will be recorded in a log (see Appendix B). *The log for each calendar year shall be submitted to Ecology by the following February 15, annually. Information required to be kept in this log includes:*

- *Name of the assigned responsible person*
- *Type and date of discharge*
- *Source water*
- *Additives*
- *Total volume (gallons)*
- *Discharge rate (gallons/minute).*
- *Location*

- *Soil loading rate (gallons/minute/square feet).*

7.5 Record Keeping

G10 The following records shall be retained for a period of at least three years (unless an extended retention period is required due to unresolved litigation regarding discharge of pollutants):

- *Calibration and maintenance records if a continuous monitoring instrument is being used in connection with the discharge activities covered under this permit.*
- *Measurements and samples for streams covered under this permit.*
- *Copies of reports required by Permit ST 4508, including the discharge log.*
- *Records of all data used to complete the application for the permit.*

For each measurement or sample taken, the following information shall be recorded:

- *Date, exact place, and time of sampling*
- *Dates the analyses were performed*
- *Who performed the analyses*
- *Analytical techniques or methods used*
- *Results of the analyses reported to the Method Detection Limit* (Method detection limits will be determined on a case-by-case basis using the baseline source water methods described in the permit application as a consideration.)
- *Name of the individual* and organization *who performed the sampling or provided the measurement.*

8.0 PERMIT EXEMPTIONS

Currently, several categories of miscellaneous streams are not subject to permitting under WAC 173-216 and therefore, are not subject to the provisions of this plan as defined in the *Plan and Schedule for Disposition and Regulatory Compliance for Miscellaneous Streams* (DOE 1994). The exemptions are as follows:

- Purge water resulting from well sampling, well development, well rehabilitation, and aquifer testing and must be managed according to *Strategy for Handling and Disposing of Purgewater at the Hanford Site, Washington.* (DOE-RL 1990).

- Industrial waste water that is discharged to the ground for beneficial use (e.g., irrigation, aesthetics, dust control) does not require permitting. However, industrial waste water must meet the WAC 173-200 Ground Water Quality Criteria at the point of discharge unless it can be demonstrated to Ecology's satisfaction that the site specific characteristics will degrade or attenuate contaminants prior to reaching the groundwater, and will not generate contaminants by discharging waste water into the environment.

- Fire test water that is not potentially contaminated is exempt from permitting. Fire test water includes: fire system checks, fire system functional tests, flushing of fire systems prior to testing, and training exercises at training centers at the Hanford Site fire stations and during facility drills.

- Wastewater from washing the exterior of vehicles is exempt from permitting and must be managed according to *Vehicle and Equipment Wastewater Discharges* (Ecology 1995).

- Discharges to the ground from cleanup activities conducted under CERCLA are not required to be permitted by WAC 173-216 or registered under WAC 173-218. However, discharges from these activities must meet the substantive requirements of the regulations or categorical permits unless otherwise agreed to by Ecology.

9.0 REFERENCES

AGC, 1990, Waste Disposal & Erosion/Sediment Control Methods, October 1990, AGC of Washington, Seattle, Washington.

DOE-RL, 1990, Letter from R. D. Izatt, *Strategy for Handling and Disposing of Purgewater at the Hanford Site, Washington*, 90-ERB-076, August 21, 1990, U.S. Department of Energy, Richland Operations, Richland, Washington.

DOE-RL, 1994, *Plan and Schedule for Disposition and Regulatory Compliance for Miscellaneous Streams*, December 1994, DOE-RL-93-94, Rev. 1, U.S. Department of Energy, Richland Operations, Richland, Washington.

DOE-RL, 1995, *State Waste Discharge Permit Application, Hydrotest, Maintenance, and Construction Discharges*, November 1995, DOE-RL-95-93, Rev. 0, U.S. Department of Energy, Richland Operations, Richland, Washington.

DOE-RL, 1996, *Miscellaneous Streams Best Management Practices (BMP) Report*, July 1996, DOE/RL-96-40, Rev. 0, U.S. Department of Energy, Richland Operations, Richland, Washington.

Ecology and DOE, 1991, *Consent Order No. DE 91NM-177,* Washington State Department of Ecology, Olympia, Washington.

Ecology, 1992, *Stormwater Management Manual for the Puget Sound Basin - The Technical Manual*, 91-75, Washington State Department of Ecology, Olympia, Washington.

Ecology, 1995, *Vehicle and Equipment Washwater Discharges,* WQ-R-95-56, Washington State Department of Ecology, Olympia, Washington.

EPA, 1979, *NPDES Best Management Practices Guidance Document*, EPA-600/9-79-045, U.S. Environmental Protection Agency, Washington, D.C.

EPA, 1992, *Best Management Practices for Protecting Ground Water - Summary of Class V Well BMP Fact Sheets*, EPA 570/9-91-036, U.S. Environmental Protection Agency, Washington, D.C.

EPA, 1993, *Guidance Manual for Developing Best Management Practices (BMP)*, EPA-833-B-004, U.S. Environmental Protection Agency, Washington, D.C.

APPENDIX A

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Table A-1. Checklist of BMPs for Hydrotest, Maintenance, and Construction Discharges.

✔	PRE-DISCHARGE BMPs	
	Good Housekeeping Practices	Maintain general good housekeeping practices as described in Section 6.1. All hazardous materials, equipment, or other items with the potential to contaminate waste water should be properly stored out of the discharge pathway.
	Preventive Maintenance Program	Maintain a preventive maintenance program. Preventive maintenance assists in minimizing contaminants by fixing potential problems early. Refer to Section 6.2 for additional detail.
	Inspections	Inspect piping components and surrounding area for potential contamination. Prior to the scheduled discharge, an inspection of the piping, valves, etc. and surrounding area should be performed in order to identify leaking valves, equipment, spills, contaminated soil or other material that may present a potential for contamination during discharge.
	Training	In addition to the general pollution prevention training provided on the Hanford Site, personnel responsible for hydrotest, maintenance, and construction discharges should receive additional training which includes reading this document and being able to identify and implement suitable BMPs for the applicable processes covered under Permit ST 4508.
	Cleaning	Clean valves and equipment before discharging. If valves or other equipment involved in the discharge show signs of visual contamination such as oil, use a non-hazardous solvent to wipe down the appropriate areas. The solvent should be allowed to evaporate before the discharge begins.
	Location Criteria	Ensure discharge locations meet required criteria. Location limitations are provided in the permit and in Section 7.3 of this document. A map should be reviewed, as well as performing a visual inspection, to identify all items necessary to ensure the discharge location meets all required criteria.
✔	DURING DISCHARGE BMPs	
	Maintain Required Flow Rates	Maintain discharge flow rates within required ranges. Refer to Section 7.1 for additional detail as needed.

Table A-1. Checklist of BMPs for Hydrotest, Maintenance, and Construction Discharges.

	Minimize Solids	Minimize discharged solids with strategically-placed filters (e.g. screen), if appropriate. Before each discharge, the responsible person should determine the appropriate BMPs. Filtering the waste water is one BMP that may or may not be appropriate. If the waste water quality can be moderately increased with a minimal effort such as filtering, the appropriate BMPs should be implemented.
	Collect Discharge	Before each discharge, the responsible person should determine the appropriate BMPs. Collecting the waste water is one BMP that may or may not be appropriate. Collect discharge, if appropriate, and visually inspect for contaminants. Whenever appropriate, all water should be recycled and reused. If there is a reasonable potential for contamination, the waste water should be sampled before discharge to the ground.
	Removed Substances	Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of waste waters to the effluent stream for discharge should not be resuspended or reintroduced to the waste water stream per permit requirement G.7.
	Minimize Ponding	If ponding occurs due to the flow rate, all reasonable efforts should be made to reduce the flow rate or move the discharge point to another suitable location.
	Minimize Discharge	Minimize the amount of water used, thereby limiting the amount of discharge.
	Minimize Additives	If using a detergent or additive, minimize the amount used. Non-hazardous additives should be used when feasible.
	Inspections	Inspect equipment or system for leakage during the discharge.
	Recycle/Reuse	Use water for dust control or irrigation whenever possible. Recycle waste water whenever possible.
✔	POST-DISCHARGE BMPS- HYDROTEST DISCHARGES	
	Documentation	Document discharge characteristics as required in Section 7.4, and report the discharge to personnel in charge of logging all discharges.
	Lessons Learned	Review the discharge process and determine if there is anything else that can be done next time to minimize potential pollutants in the waste water, minimize the amount of water used, and/or recycle or reuse waste water.

Table A-2. Checklist of BMPs for HAMMER Pond.

✔	PRE-DISCHARGE BMPs	
	Good Housekeeping	Maintain general good housekeeping practices as described in Section 6.1. All hazardous materials, equipment, or other items with the potential to contaminate waste water should be properly stored away from the pond and associated drains.
	Preventive Maintenance	Weekly water level measurements of the pond will be taken to identify any large leaks in the pond liner. However, water levels will fluctuate depending on the precipitation , the number of training exercises, evaporation rates, etc.
	Inspections	Inspect visible portions of the pond liner monthly for cracks or other potential problems. In addition, inspect the surrounding area for potential contamination.
	Training	In addition to the general pollution prevention training provided on the Hanford Site, personnel responsible for hydrotest, maintenance, and construction discharges should receive additional training which includes reading this document and being able to identify and implement the selected BMPs for the HAMMER Pond.
	Cleaning	The entire pond will be drained, inspected and refilled with potable water once every five years.
	Location Criteria	Ensure discharge location meets required criteria provided in the permit and Section 7.3 of this document.
	Water Treatment	Chemical additives (e. g., bleach, algicides) are added to the pond to control algae, bacteria, and bugs. Chemicals will be added when algae is visually observed in the pond and will be maintained at the minimal level to prevent algae growth. Currently, bromide is added to maintain a concentration of approximately 1 part per million. Weekly samples will be collected and analyzed. Chemicals will be added into the pond via the artificial stream of the recirculation system.
✔	DURING DISCHARGE BMPs	
	Protect Drains	Vehicles e allowed to park near the drain lines that carry water used in the training exercises back to the pond for reuse will be monitored for spills and leaks. This will prevent oil contamination of the water in the pond.

Table A-2. Checklist of BMPs for HAMMER Pond.

	Simulate Hazardous Materials	Props will be used to simulate hazardous materials for the purposes of the training exercises. For example, a drum may be labeled as "Hazardous Waste" but will only contain water.
	Minimize Additives	As stated under Water Treatment (above), additives should be maintained at the minimum levels required to control algae, bacteria, and bug problems. Operations personnel will continue to review and evaluate chemical additives in an effort to identify more environmentally acceptable alternatives.
	Removed Substances	Collected screenings, grit, solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of waste waters to the effluent stream for discharge should not be resuspended or reintroduced to the waste water stream per permit requirement G.7.
	Inspections	Responsible personnel should inspect the surrounding areas for chemical spills during the training exercises.
	Recycle/Reuse	Water used during training exercises should be recycled back to the pond through the drain system.
✔	**POST-DISCHARGE BMPs**	
	Documentation/ Notification	If a problem is observed during the inspections, personnel should notify Air and Water Services, Waste Management Incorporated.

APPENDIX B

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Table B-1. Significant Discharge Log for State Waste Discharge Permit No. ST 4508
Hydrotest, Maintenance, and Construction Discharges.

CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
J. E. Rasmussen, RL J. A. Winterhalder, WMH (R. D. Haggard, WMH, 376-3723)	D. S. Dougherty, Ecology	Incoming:9762097 Xref: WMH-9757085

Subject: STATE WASTE DISCHARGE PERMIT ST 4508 DRAFT POLLUTION PREVENTION AND BEST MANAGEMENT PRACTICES PLAN

DISTRIBUTION

Approval	Date	Name	Location	w/att
		Correspondence Control	A3-01	X
		Fluor Daniel Hanford, Inc.		
		W. D. Adair	H6-21	X
		B. M. Akers	G5-54	
		C. G. Mattsson	N1-26	
		K. J. Svoboda	H5-20	
		C. P. Strand	H6-24	X
		B. D. Williamson	B3-15	
		B&W Hanford Company		
		T. G. Beam	S4-66	
		T. A. Dillhoff	N2-57	
		K. A. Hadley	R3-56	X
		G. J. LeBaron	S6-15	
		D. E. Rasmussen	N1-47	
		T. M. Ridge	S4-66	
		J. R. Robertson	T5-54	
		DE&S Hanford, Inc.		
		P. G. LeRoy	R3-15	
		D. J. Watson	X3-79	X
		DynCorp Tri-Cities Services, Inc.		
		B. J. Dixon	G3-26	
		M. R. Gunter	G3-26	
		C. E. Marple	S4-56	
		A. D. Poor	L6-55	
		Lockheed Martin Hanford Corporation		
		M. S. Allen	S7-01	
		J. M. Barnett	T4-08	
		D. J. Carrell	R1-51	
		B. G. Erlandson	R2-36	X
		R. K. P'Pool	S5-03	
		Waste Management Federal Services of Hanford, Inc.		
		E. S. Aromi	H6-30	
		H. C. Boynton	T4-52	
		D. L. Flyckt	S6-71	
		E. M. Greager	H6-36	
		P. R. Gunter	S6-74	
		R. D. Haggard	H6-25	X
		D. W. Lindsey	S6-71	
		K. J. Lueck	S6-71	
		J. J. Luke	H6-25	
		J. McCoy	H6-21	
		K. M. McDonald	T4-04	
		R. J. Nicklas	S6-72	
		D. L. Renberger	T3-03	
		R. W. Szelmeczka	L6-05	
		K. S. Tollefson	T6-12	
		D. B. Van Leuven	H6-10	
		B. H. Von Bargen	S6-72	
		J. A. Winterhalder	H6-21	
		M. T. Yasdick	H6-10	
		EDMC	H6-08	X
		200 LEF Reg. File	S6-71	X
		SWDPC Sat	T3-05	X

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12/31/97

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