INTEGRATED DISPOSAL FACILITY
APPENDIX C8
SUB-SURFACE LIQUIDS MONITORING AND OPERATIONS PLAN
CHANGE CONTROL LOG

Change Control Logs ensure that changes to this unit are performed in a methodical, controlled, coordinated, and transparent manner. Each unit addendum will have its own change control log with a modification history table. The "**Modification Number**" represents Ecology's method for tracking the different versions of the permit. This log will serve as an up to date record of modifications and version history of the unit.

Modification History Table

Modification Date	Modification Number
06/09/2023	8C.2023.2F

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INTEGRATED DISPOSAL FACILITY
APPENDIX C8
SUB-SURFACE LIQUIDS MONITORING AND OPERATIONS PLAN

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APPENDIX C8
SUB-SURFACE LIQUIDS MONITORING AND OPERATIONS PLAN

TABLE OF CONTENTS

C8.1 Introduction 5
C8.2 Secondary Leak Detection System 5
C8.2.1 Monitoring Frequency and Level Sensor 5
C8.2.2 Liquid Collection and Storage Processes 6
C8.2.3 Sampling and Analysis 6
C8.2.4 Response Action Plan 6
C8.3 References 7

FIGURE

Figure C8-1 Data Logging System for Secondary Leak Detection System 6

TERMS

AEA	*Atomic Energy Act of 1954*
ALR	Action Leakage Rate
IDF	Integrated Disposal Facility
LDS	Leak Detection System
LERF/ETF	Liquid Effluent Treatment Facility and 200 Area Effluent Treatment Facility
SLDS	Secondary Leak Detection System
DOE	U.S. Department of Energy

C8.1 INTRODUCTION

This chapter contains the Sub-surface Liquids Monitoring and Operations Plan for the Integrated Disposal Facility (IDF) Secondary Leak Detection System (SLDS).

The SLDS is not a design requirement of Washington Administrative Code (WAC) 173-303-665, *Landfills*. The system is a redundant leak detection system that serves as an indicator of the performance of the WAC 173-303-665 required leachate collection, removal, and leak detection systems. Pursuant to the *Atomic Energy Act of 1954* (AEA), the U.S. Department of Energy (DOE) has sole and exclusive responsibility and authority to regulate the source, special nuclear and by-product material component of radioactive mixed waste at DOE-owned nuclear facilities. Source, special nuclear and by-product materials, as defined by AEA, are not subject to regulation under *Resource Conservation and Recovery Act of 1976* or the *Hazardous Waste Management Act* (Revised Code of Washington [RCW] 70.105) by the State of Washington and are not subject to State dangerous waste permits, orders, or any other enforceable instruments issued thereunder. DOE recognizes that radionuclide data may be useful in the development and confirmation of geohydrologic conceptual models. Radionuclide data contained herein is therefore provided as a matter of comity so the information may be used for such purposes.

C8.2 SECONDARY LEAK DETECTION SYSTEM

The SLDS is located beneath Cell 1 and Cell 2 Leak Detection System (LDS) sump areas, as discussed in Chapter 4.0, “Process Information.” The riser pipe located at the base of the SLDS is used for collection and monitoring purposes. The riser pipe provides access to the SLDS for liquid depth monitoring and removal using a temporary pump.

This section describes the SLDS monitoring frequency, pressure transducer configuration, liquid collection and storage processes, sampling and analysis, and response actions. The activities described help ensure situations do not exist that might cause or lead to the release of dangerous waste constituents to the environment, degradation of safety equipment and systems, or that may pose a threat to human health.

C8.2.1 Monitoring Frequency and Level Sensor

The SLDS is equipped with a level sensor located within the perforated riser pipe that transmits a signal to a data logger. The data logger is installed within a panel box on the SLDS access pad located adjacent to each Crest Pad Building (219A and 219E) and can be used to monitor and record SLDS liquid levels.

Monitoring is performed once per calendar week by reviewing and recording the SLDS liquid level which is digitally displayed in the SLDS panel box (see Figure C8-1). The SLDS liquid level is reviewed to determine when the accumulated liquid has reached a quantity that requires pumping to ensure that the fluid head does not exceed 30.5 cm (12.0 in.) above the SLDS liner. Liquid with a depth greater than 30.5 cm (12.0 in.) above the SLDS liner will be removed at the earliest practicable time after detection (not to exceed 5 working days).

Monitoring gauges and instruments described in this section shall be in current calibration. In accordance with the IDF Permit Condition III.11.B.5.e.vi, calibration will be performed annually or more frequently at intervals suggested by the manufacturer (refer to Section 4.2.7.4, Maintenance Procedures for Leachate Collection and Removal Systems, of the IDF Permit Chapter 4.0).

Monitoring data will be maintained in the IDF portion of the Hanford Facility Operating Record in accordance with WA7890008967, Hanford Facility Resource Conservation and Recovery Act Permit, General Facility Condition II.I.1.

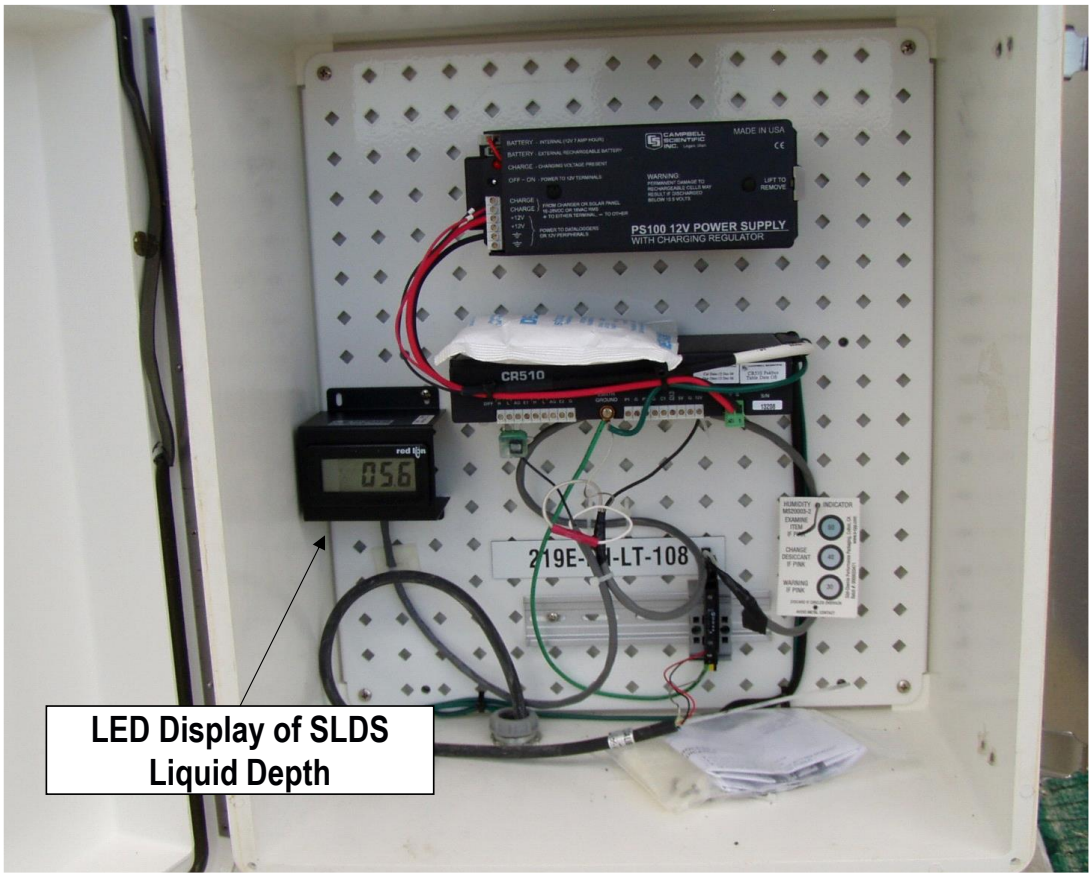

Figure C8-1 Data Logging System for Secondary Leak Detection System

C8.2.2 Liquid Collection and Storage Processes

The SLDS does not contain a permanent pump; therefore, pumpable quantities of liquids are removed manually by inserting a portable, submersible pump into the SLDS riser pipe. During the active life of the IDF, pumpable quantities of leachate present in the SLDS will be transferred to the leachate collection units for storage.

C8.2.3 Sampling and Analysis

Any leachate accumulated will be sampled and analyzed to meet waste acceptance criteria at the receiving treatment, storage, and disposal facility, Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility (LERF/ETF). Sampling and analysis activities are described in Appendix C7A, "Sampling and Analysis Plan for Integrated Disposal Facility Leachate."

C8.2.4 Response Action Plan

WAC 173-303-665(9) requires a response action plan prior to receipt of waste, because exceeding the action leakage rate (ALR) may be an indication of failure of the primary lining system. The IDF has a "Facility Response Action Plan" (located in Appendix 4C), which describes the ALR associated with the LDS and required response actions if the LDS ALR is exceeded.

WAC 173-303, *Dangerous Waste Regulations* does not require an additional response action plan for the SLDS since any problems associated with the IDF liner system will first be indicated by an exceedance of the LDS ALR.

C8.3 REFERENCES

Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011, Pub. L. 83-703, 68 Stat. 919. Available at: https://www.epa.gov/laws-regulations/summary-atomic-energy-act.

RCW 70.105, *Hazardous Waste Management*, Revised Code of Washington, Olympia, Washington. Available at: http://apps.leg.wa.gov/RCW/default.aspx?cite=70.105.

Resource Conservation and Recovery Act of 1976, 42 U.S.C. 6901, et seq. Available at: https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act.

WA7890008967, Hanford Facility Resource Conservation and Recovery Act Permit, as amended, Washington State Department of Ecology, Richland, Washington. Available at: https://fortress.wa.gov/ecy/nwp/permitting/hdwp/rev/8c/index.html.

WAC 173-303, *Dangerous Waste Regulations*, Washington Administrative Code, Olympia, Washington. Available at: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-303.

303-665, *Landfills*.

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