Resolution No. 137

WHEREAS, Condition G-16 of the Skagit Nuclear Power Project NPDES Permit requires the Puget Sound Power & Light Company (Puget) to submit for approval an operational manual for the sediment retention facilities, and

WHEREAS, On January 20, 1978 Puget did submit to the Council a proposed operational manual, and

WHEREAS, On March 14, 1978 representatives of the Council and Puget did consult and perfect said proposal, and

WHEREAS, On March 27, 1978 Puget did submit a revised proposal properly incorporating the modifications developed in consultation with the Council,

NOW, THEREFORE, BE IT RESOLVED That Puget's proposal entitled "Sediment Retention Facilities (Revision 1)" and appended hereto is herewith approved in satisfaction of Condition G-16 of the Skagit Nuclear Power Project NPDES Permit.

Dated this 27th day of March 1978.

WASHINGTON STATE ENERGY FACILITY
SITE EVALUATION COUNCIL

BY _____
Nicholas D. Lewis
Chairman

ATTEST:

BY _____
William L. Fitch
Executive Secretary

APPROVED AS TO FORM:

BY _____
Thomas F. Carr
Assistant Attorney General

PUGET SOUND POWER & LIGHT COMPANY

SKAGIT NUCLEAR POWER PROJECT

SEDIMENT RETENTION FACILITIES

DOCUMENT NO. NPDES-G16

March 1978
(Revision 1)

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SEDIMENT RETENTION FACILITIES

1.0 PURPOSE & SCOPE

Sediment retention facilities (SRF's) will be constructed during the early phases of construction to maintain operational control over the quality of surface water runoff from the major construction areas. The facilities will be strategically located such that each controls the runoff from a specific portion of the construction area. They have been designed to provide storage for runoff from a postulated 10-year, 24-hour rainfall event. This document provides the SRF operation policies that will be followed.

2.0 REFERENCES

(1) State of Washington, Skagit Nuclear Power Project, Washington State Site Certification Agreement, 1977.

(2) U.S. Environmental Protection Agency, 1974. Methods for Chemical Analysis of Water and Wastes. EPA-625/6-74-003. Office of Technology Transfer, Washington, D. C.

(3) American Public Health Association, American Water Works Association, Water Pollution Control Federation, 1975. Standard Methods for the Examination of Water and Wastewater. 14th Edition. American Public Health Association, Washington, D. C. 1193 pp.

3.0 GENERAL DESCRIPTION OF FACILITIES

Six SRFs will be constructed and operated. The locations of these are shown on Figure 1. Information concerning purpose and scheduling for each of the SRFs follows:

(1) Temporary Sediment Retention Facility #1, near Black Creek (TSRF-1).

  (a) TSRF-1 will control sedimentation due to construction activities within part of the Black Creek drainage prior to the diversion of Black Creek.

  (b) It will be constructed as soon as possible after site work begins.

  (c) It will remain operational until the Black Creek Sediment Retention Facility is operational.

(2) Temporary Sediment Retention Facility #2, near the concrete batch plant (TSRF-2).

  (a) TSRF-2 will control sedimentation from construction in the Tank Creek drainage prior to completion of the Tank Creek SRF. Upon completion of the Tank Creek SRF, TSRF-2 will drain into Tank Creek SRF and, therefore, will provide additional storage and settling time for runoff from part of the Tank Creek drainage. In addition, it will isolate and control possible pollutants resulting from accidental spills during operation of the batch plant.

(b) It will be operational before batch plant operations begin.

(c) It will remain operational until batch plant operations are terminated.

(3) Black Creek Sediment Retention Pond, NPDES Discharge Point Serial Number 002 (SRF-002).

(a) SRF-002 will control sedimentation due to construction activities within the Black Creek drainage.

(b) It will be constructed prior to any site modification in the Black Creek drainage area that is not controlled by TSRF-1, except clearing activities and construction of the Black Creek diversion channel.

(c) It will remain operational throughout Project construction.

(4) Tank Creek Sediment Retention Pond, NPDES Discharge Point Serial Number 003 (SRF-003).

(a) SRF-003 will control sedimentation due to construction activities within the Tank Creek drainage area.

(b) It will be constructed prior to any site work, except clearing, in portions of the Tank Creek drainage area not controlled by TSRF-2 or construction disposal area retention facilities.

(c) It will remain operational throughout Project construction.

(5) Construction Disposal Area "A" Sediment Retention Embankment, NPDES Discharge Point Serial Number 004 (SRF-004).

(a) SRF-004 will control sedimentation and potential contamination from materials disposed of in Disposal Area "A".

(b) It will be constructed prior to any site work except clearing and grubbing.

(c) It will be constructed prior to disposal of any material in Area "A".

(d) It will remain operational until spoils have been vegetated and stabilized with respect to erosion.

(6) Construction Disposal Area "B" Sediment Retention Embankment, NPDES Discharge Point Serial Number 005 (SRF-005).

(a) SRF-005 will control sedimentation and potential contamination from materials disposed of in Disposal Area "B".

(b) It will be constructed prior to disposal of any materials in Area "B".

(c) It will remain operational until spoils have been vegetated and stabilized with respect to erosion.

The SRF's shall be operated at all times in compliance with the provisions of the NPDES Permit. The ponds are designed to be at a minimum pool level with the gates closed when a rainfall event begins. Runoff entering the ponds will be retained and/or treated to bring it to within the specifications for discharge. See Supplement I for detail.

4.0 SRF OPERATION

4.1 Water Retention

The SRF discharge outlets shall be closed:

(1) When the minimum pool level is attained during a routine discharge of water.

(2) When sufficient rainfall occurs after a period of continuous discharge to cause surface runoff to degrade the quality of discharged water beyond that permitted by effluent limitations.

(3) When work in an SRF drainage area causes turbidity and suspended solids levels in the SRF to increase above the effluent limitations.

(4) Immediately after any spill of petroleum products or hazardous substances, if there is a possibility that the spill has entered or will enter an SRF.

(5) During any discharge when any of the water quality parameters exceed permitted effluent limitations unless authorized by appropriate authority under the provision of NPDES Permit Condition G12.

(6) When personnel are not present to supervise a discharge.

4.2 Water Release

The SRF discharge outlets may be opened:

(1) As soon as practical after major runoff periods if the following conditions are met:

  (a) The water in the pond meets the permitted effluent limitations.

  (b) Discharge has been approved by the Senior Environmental Scientist.

(2) During periods when rainfall will not cause surface runoff to degrade the quality of discharged water beyond that permitted by effluent limitations. Clean water may be continuously released to provide maximum reserve storage capacity if the conditions in (1) are met.

(3) As necessary during construction or repair of the outlet works.

4.3 Removal of Sediment

(1) Sediment shall be removed from an SRF basin if the volume of sediment exceeds 75 percent of the original (preoperational) storage volume below the elevation of the lowest discharge outlet. 1

(2) Sediment shall be removed during periods when little or no water is present in the facility.

(3) Sediment shall not be removed during periods of high runoff or while water is being released.

(4) The PSP&L Site Manager shall be notified and approve the schedule and method for sediment removal and disposal.

(5) Removed sediment shall be used as fill or placed in an authorized disposal area.

4.4 Measures to Optimize SRF Operations

(1) The bed and banks of the receiving stream shall be inspected before and after each discharge from each SRF and periodically to limit erosive effects. Gravel or riprap shall be placed as needed. |1

(2) Trash racks shall be inspected before and after each discharge and cleaned as necessary to remove debris. |1

(3) The volume of water released shall be regulated, when possible, to minimize chances of creating stream flows so high that fish will be stranded in isolated pools when water release is terminated. When stream flows are low, termination of flow shall be done in steps, if possible, to allow fish time to leave areas wetted during the discharge. |1

(4) If a spill of a potentially hazardous substance has occurred in an SRF drainage area, sampling may be required by Puget (Site Environmental Supervisor) to ensure that none has reached the SRF. |1

(5) When authorized by the PSP&L Site Manager, water may be pumped from the SRFs for irrigation, dust control, or other appropriate on-site uses. When this is done, inspections shall be made to ensure that turbid waters are not re-entering surface water courses not protected by sediment retention facilities. The pumping rate, duration of pumping, and water use must be entered in the SRF Discharge Log.

4.5 Bypass of SRFs

(1) In accordance with permit Condition G12, diversion of runoff to bypass the SRFs shall be prohibited, except:

(a) When unavoidable to protect human life or to mitigate severe property damage.

(b) When excessive storm drainage or runoff would damage any facility necessary for compliance with terms and conditions of the NPDES permit.

(2) If bypass of an SRF occurs, the Manager of Nuclear Licensing and Safety shall notify EFSEC in writing within 48 hours.

5.0 MONITORING

Sampling of water in SRFs and receiving streams is required prior to any discharge to ensure that the water meets the effluent limitations for discharge (Tables 1 and 2). Once a discharge begins, sampling will be done at least every 24 hours to ensure continued compliance with the limitations. When conditions in the receiving stream or in the SRF are changing, more frequent sampling by Puget (Site Environmental Supervisor) may be required to ensure compliance. All samples and measurements should be representative of the volume and nature of the water sampled. Measurements shall be made in accordance with references 2 and 3. 1

6.0 AUTHORITY & RESPONSIBILITY

The following personnel have responsibilities related to the SRFs:

Director of Conservation and Environmental Affairs (Director C&EA)
Manager of Nuclear Licensing & Safety (Manager NL&S)
Puget Sound Power & Light Company Site Manager (PSP&L Site Manager)
Senior Environmental Scientist (SES)
Environmental Supervisor (ES)
Water Quality Chemist(s) (WQ Chemist)
SRF Operations

The Manager of Nuclear Licensing and Safety is responsible for all regulatory agency and permit aspects of SRF operation. The Director C&EA maintains overall management authority for the SRF program. The Senior Environmental Scientist is responsible for the operation of the SRFs. The Environmental Supervisor shall be authorized to delegate functions and duties to operational personnel. The WQ Chemist shall be responsible for sampling and testing the waters of the SRFs and receiving streams. The SRF Operators shall operate the SRFs under the supervision of the Environmental Supervisor.

7.0 DOCUMENTATION & REPORTING

Reports required during routine operation of the SRFs shall include the following:

(1) A daily SRF Status Report for each SRF.

(2) An SRF Discharge Log maintained daily for each SRF.

(3) A Discharge Monitoring Report (EPA Form 3320-1).

If unusual conditions or violations of effluent limitations occur, or if an SRF is bypassed, the SRF Operator shall immediately give the Environmental Supervisor a verbal report of the event and record the event on the Status Report. These reports shall include:

- o The SRF involved.
- o The nature, cause, and duration of the event.
- o Corrective measures that have been taken.

The Senior Environmental Scientist shall immediately inform the Director C&EA, the PSP&L Site Manager, and Manager NL&S. The Environmental Supervisor shall follow with a written report of the event.

The Manager NL&S shall notify EFSEC in writing. The following information shall be included:

- Description of the discharge.
- Cause and duration (date and time) of the event.
- The estimated time required to correct the situation, if not already corrected.
- Measures being taken to limit or prevent recurrence of a non-complying discharge or bypass.

TABLE 1
NPDES MONITORING REQUIREMENTS AND EFFLUENT LIMITATIONS
FOR SEDIMENT RETENTION FACILITIES

Parameter	Permit[a] Condition Number	Limitations for Discharge 002 into Wiseman Creek and for Discharges 003, 004, and 005 into Tank Creek[b]	Monitoring Requirement
Total suspended solids, mg/liter	S.2	50 maximum	One grab sample per day during discharge
pH, standard units	S.2 and G5	Within the range of 6.5 to 8.5 with a man-caused variation within a range of less than 0.2 units.	One grab sample per day during discharge
Dissolved oxygen, mg O_2/liter	G5	9.5 minimum	(c)
Total dissolved gas	G5	Shall not exceed 110 percent of saturation at any point of sample collection.	(c)
Fecal coliforms MPN/100 ml	G5	Shall not exceed a median value of 50, with not more than 10 percent of samples exceeding 100.	(c)
Temperature, °C	G5	Shall not exceed 16.0° due to human activities. Temperature increases shall not, at any time, exceed $t = 23/(T + 5)$. When natural conditions exceed 16.0° no temperature increase will be allowed which will raise the receiving water temperature by greater than 0.3°. "t" represents the permissive temperature change across the dilution zone; and "T" represents the highest existing temperature outside of any dilution zone. Provided that temperature increase resulting from nonpoint source activities shall not exceed 2.8° and the maximum water temperature shall not exceed 16.3°.	(c)
	G16	No discharge greater than 21.1° (70°F) without temporary waiver from EFSEC.	
Turbidity, NTU	G5	Shall not exceed 5 NTU over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU.	(c)
Aesthetic values	G5	Shall not be impaired by the presence of materials or their effects, excluding those of natural origin, which offend the senses of sight, smell, touch, or taste.	(c)
Toxic, radioactive, or deleterious material	G5	Concentrations shall be less than those which may affect public health, the natural aquatic environment, or the desirability of the water for any use.	(c)
Polychlorinated biphenyl compounds	G1	No Discharge	(c)
Materials added for corrosion inhibition, including zinc, chromium and phosphorous	G1	No Discharge	(c)
Solid waste material from SRFs	G7	Shall be disposed of in a manner which will not allow pollution of ground or surface water.	(c)
Oil, grease, chemicals, cement truck washings, and other substances	G15	Shall not be dumped, spilled, or deposited in areas where they will be carried into discharges.	(c)

(a) Limitations per NPDES Permit Condition G5 are specified by State of Washington Water Quality Standards WAC 173-201 (Washington State Department of Ecology 1977).
(b) Both streams are Class AA per WAC 173-201-070(2) and (6); Wiseman Creek is tributary to the Class AA section of the Skagit River (above River Mile 26) and Tank Creek is a feeder stream to Minkler Lake.
(c) None specified. See Section 5.0 for monitoring program.

TABLE 2

ALLOWABLE TEMPERATURE INCREASE
IN WISEMAN AND TANK CREEKS (CLASS AA)
BELOW SRF DISCHARGE POINTS 002, 003, 004, 005

Stream Temperature Above Discharge (°C)	Allowable Temperature Increase (°C)[(a)]
0	2.9
1	2.7
2	2.4
3	2.2
4	2.1
5	1.9
6	1.8
7	1.7
8	1.6
9	1.5
10	1.4
11	1.3
12	1.3
13	1.2
14	1.1
15	1.1
16	1.0
>16	0.3

(a) Values calculated from equation supplied by EFSEC staff, March 1978:

$$t = \frac{[(T_R + B)^2 + 4A]^{1/2} - (T_R + B)}{2}$$

Where: t = allowable temperature increase
and T_R = stream temperature above discharge

Constants A and B are from Washington State Water Quality Standards, WAC 173-201 (Department of Ecology, December 19, 1977).

For Class AA: A = 23 and B = 5.

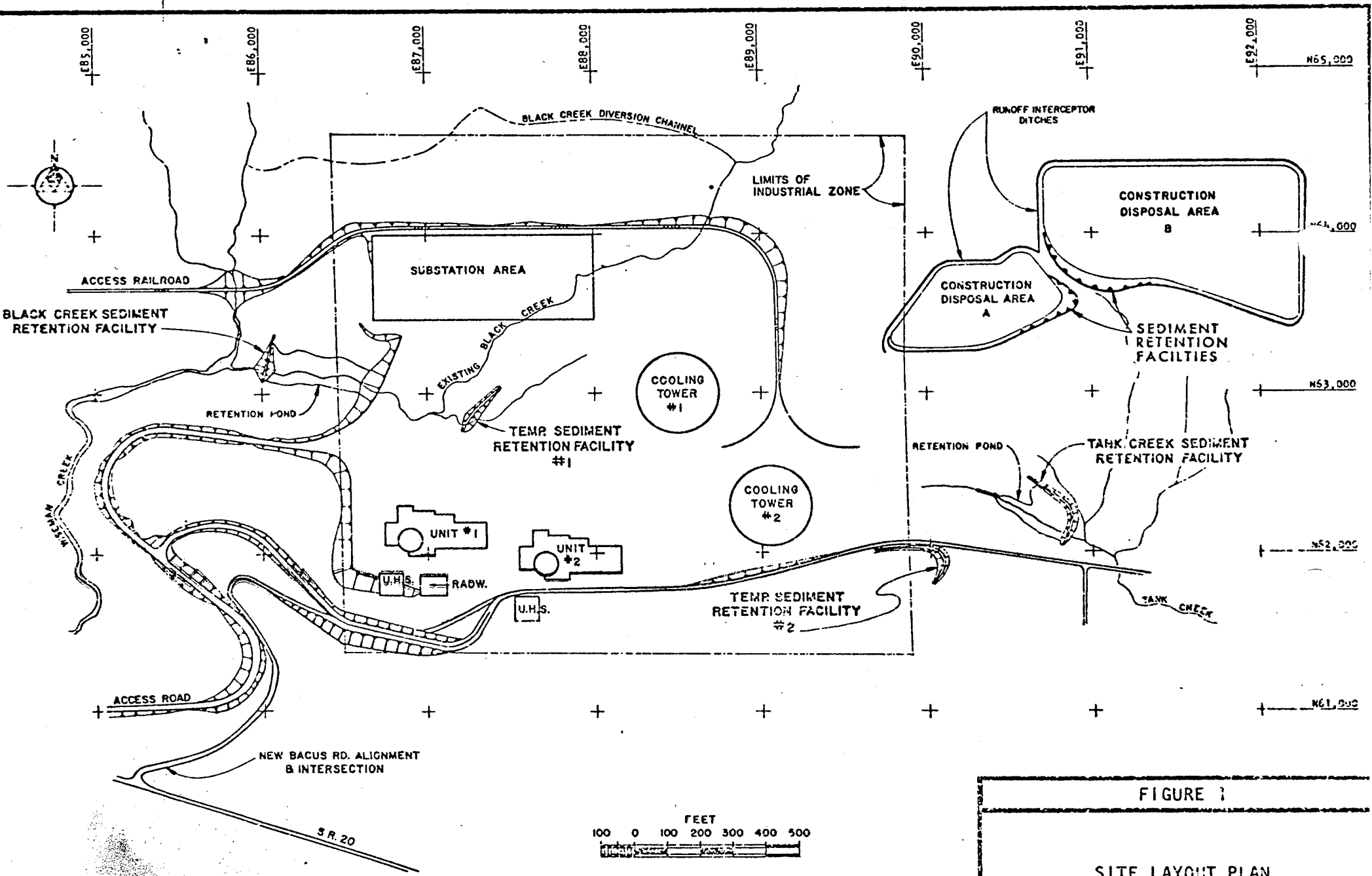

FIGURE 1

SITE LAYOUT PLAN

SKAGIT NUCLEAR POWER PROJECT

SUPPLEMENT I

SRF DESCRIPTIONS

SKAGIT NUCLEAR POWER PROJECT

SUPPLEMENT I

SRF DESCRIPTIONS

Each SRF is designed to collect the runoff and eroded sediment from a small upstream drainage area. The water and sediment flow into the SRF and form a pond, which is contained by an embankment. In the embankment there is an outlet structure equipped with a screened inlet, sluice gate, trash rack, spillway, and spillway channel or culvert.

Sediment that enters the SRF settles to the bottom and is stored there. Water is held in the SRF until it can be discharged in accordance with the NPDES Permit. Discharge is controlled by a sluice gate which is located in or behind the spillway. The sluice gate is opened and closed by turning a handwheel. When the sluice gate is opened, water flows through the screened inlet and into and through the spillway channel or culvert to the receiving stream. The screening on the inlet and trash rack on the spillway will catch debris.

There are three types of outlet structures for the SRFs:

SRF	OUTLET STRUCTURE
TSRF #1	Type 1
TSRF #2	Type 1
Black Creek	Type 3
Tank Creek	Type 2
Construction Disposal Area A	Type 1
Construction Disposal Area B	Type 1

The following figures show each type of outlet structure and illustrate the mechanical operation of the SRFs. The illustrations are not drawn to scale; they are intended only to familiarize personnel with the different outlet

structures.

Outlet Structure-Type 1

Type 1 is shown on Figure S-1. Water flows from the SRF through a fixed, screened inlet to the sluice gate and then into a surge chamber. Next the water flows through the embankment via the spillway culvert and is discharged.

Outlet Structure-Type 2

Type 2 is shown on Figure S-2. Notice it is similar to Type 1, except it has two sluice gates instead of one. Each gate is at a different level, allowing discharge at either or both levels. Also, there is no separate inlet structure; the screened opening to the sluice gate is the inlet.

Outlet Structure-Type 3

Type 3 is shown on Figure S-3. Water in the SRF is drawn through a screened inlet which is submerged below the water level and is attached to a floating skimmer. Water flows through a flexible hose into a pipe and then to the sluice gate which is located in the side of the spillway channel behind the spillway. When the sluice gate is opened, water flows into the open spillway channel to Black Creek.

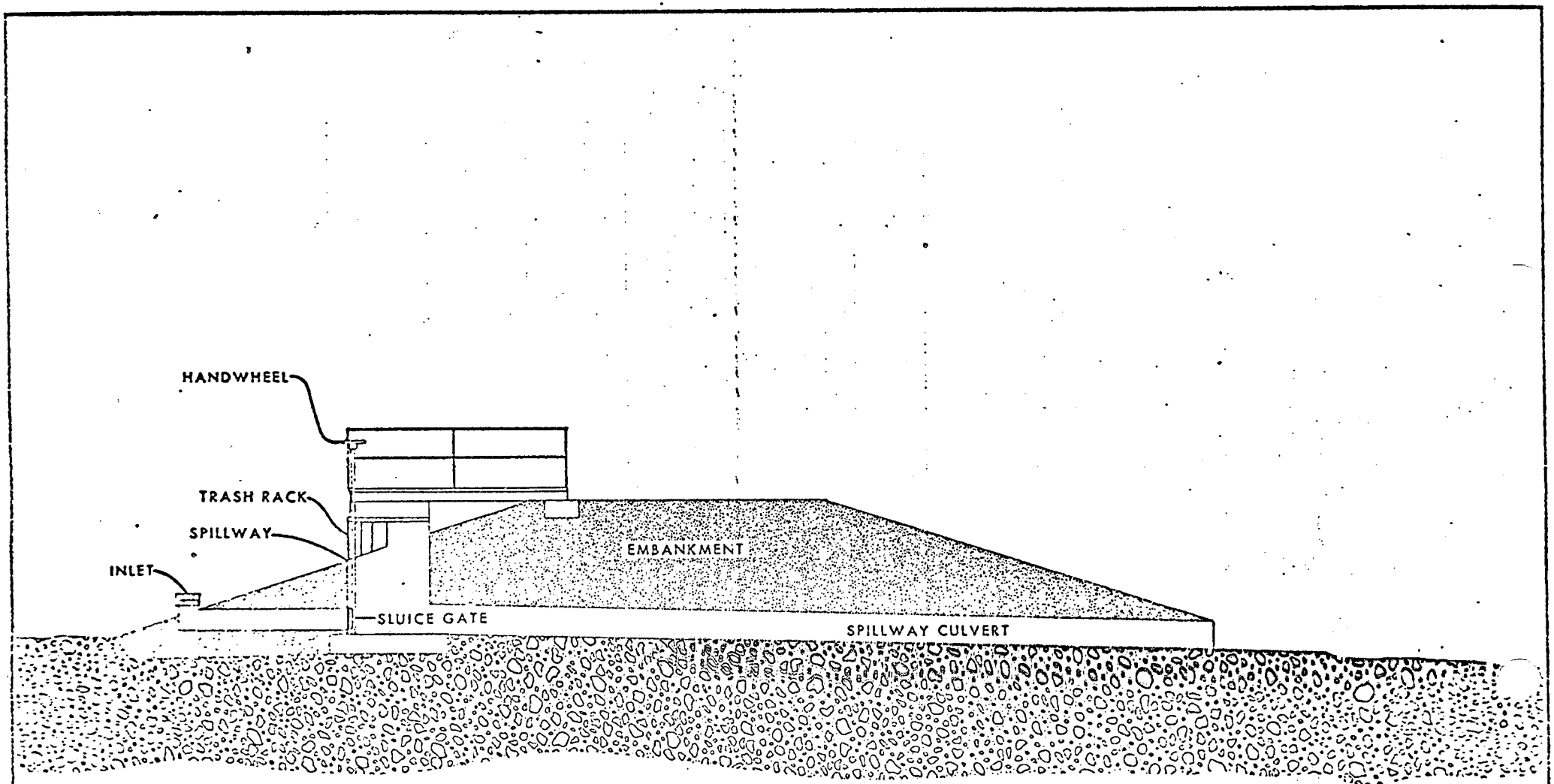

FIGURE S-1
OUTLET STRUCTURE CENTER
TYPE 1
(NOT TO SCALE)

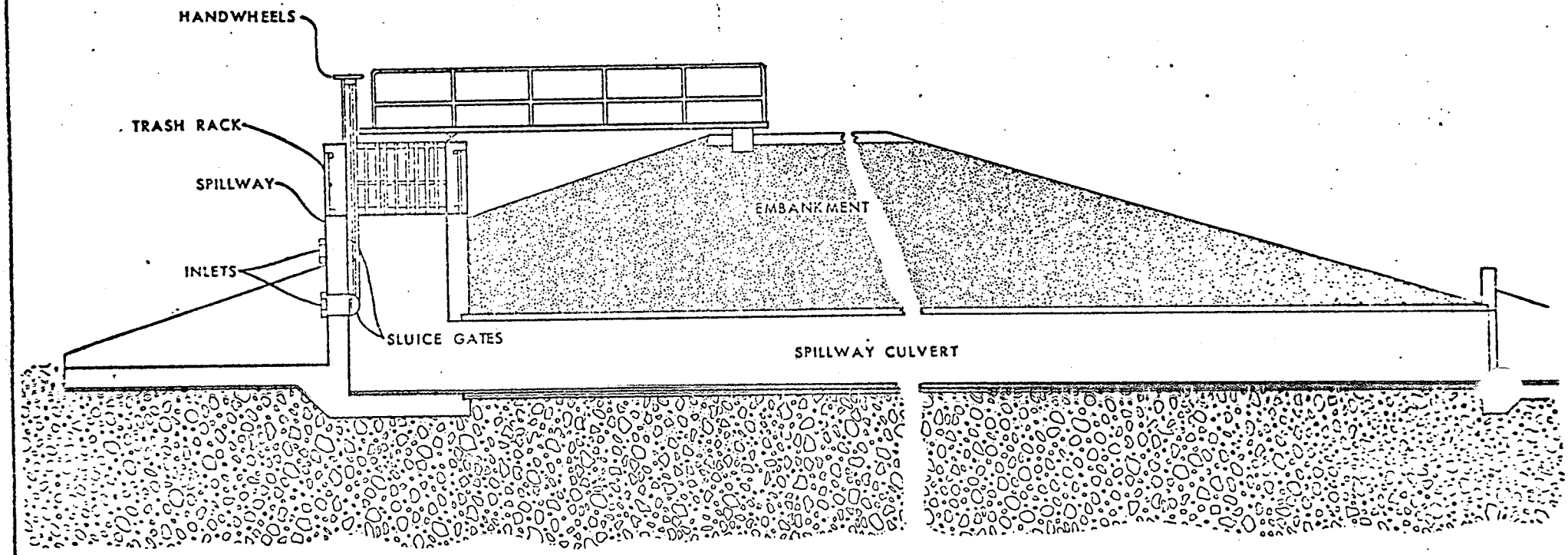

FIGURE S-2
OUTLET STRUCTURE CENTER
TYPE 2
(NOT TO SCALE)

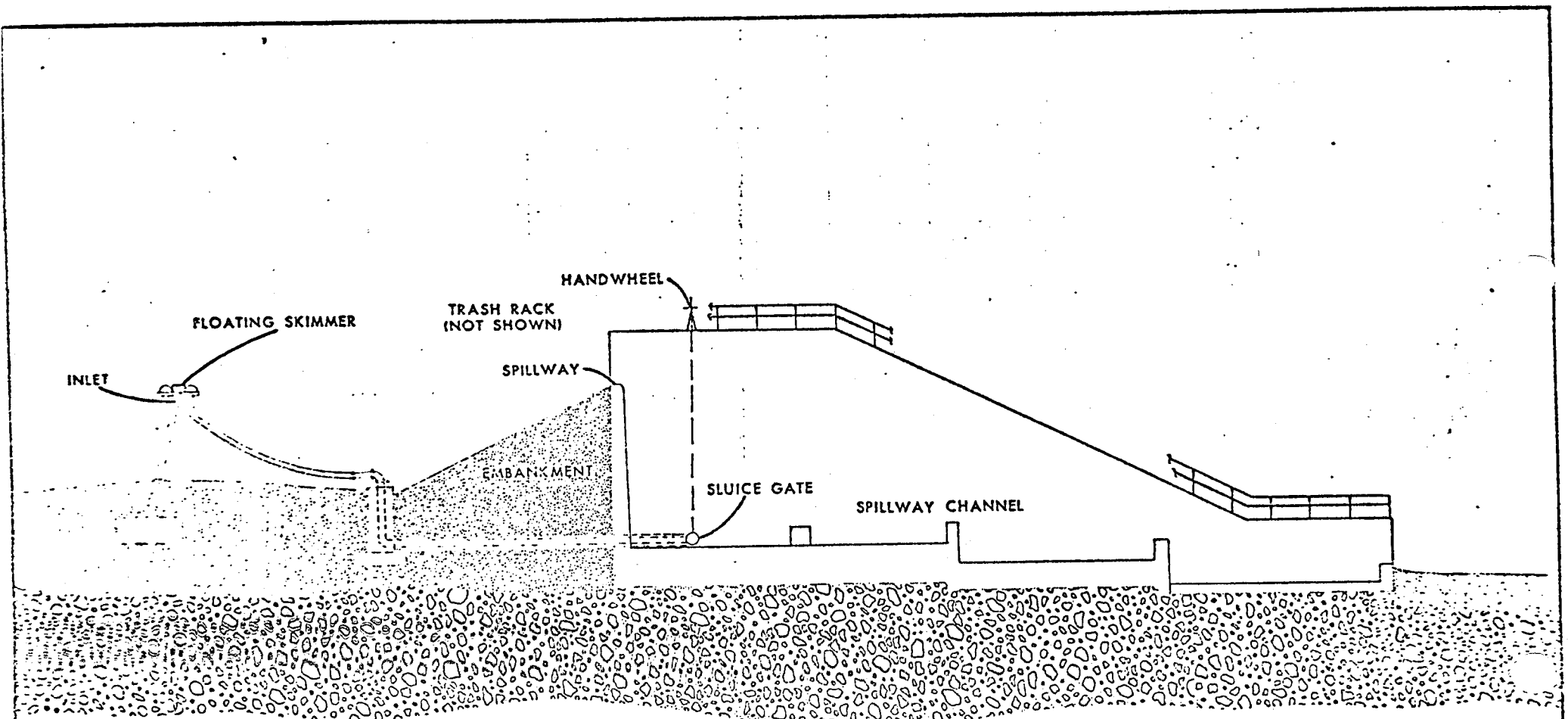

FIGURE S-3
OUTLET STRUCTURE CENTER
TYPE 3
(NOT TO SCALE)