

West Valley Demonstration Project

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**NORTH PLATEAU
PERMEABLE TREATMENT WALL
S-09 STORM WATER DISCHARGE OUTFALL and PARSHALL FLUME
LAGOON 3 EMBANKMENT
OPERATIONS AND MAINTENANCE PLAN**

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1.0 INTRODUCTION

1.1 This Operations and Maintenance Plan identifies the activities associated with the operation and maintenance of three (3) areas on the North Plateau at the WVDP as listed below:

1.1.1 Permeable Treatment Wall

1.1.2 S-09 Storm Water Discharge Outfall and Parshall Flume

1.1.3 Lagoon 3 Embankment

2.0 INSPECTION REQUIREMENTS

2.1 Inspections shall be conducted by System Engineering (or designee) on a monthly basis.

2.2 Additional inspections may be conducted due to precipitation events or off-normal occurrences.

2.3 Copies of inspection reports and corrective action documentation shall be retained by System Engineer with copies transmitted to Operations and Regulatory Strategy.

3.0 MAINTENANCE REQUIREMENTS

3.1 Routine Maintenance shall be performed as indicated herein.

3.2 Non-Routine Maintenance and repairs, as identified by the inspection reports or otherwise discovered, shall be performed by qualified site or subcontracted personnel in a timely manner after being identified.

4.0 SYSTEM DESCRIPTION, INSPECTION, OPERATIONAL AND MAINTENANCE REQUIREMENTS FOR THE PERMEABLE TREATMENT WALL

4.1 Permeable Treatment Wall System Description

4.1.1 The Permeable Treatment Wall is a passive groundwater treatment system wherein the Operation and Maintenance-type activities are minimal (as compared to a more typical pump and treat groundwater treatment system).

4.1.2 A zeolite-filled Wall was installed in the North Plateau area of the West Valley Demonstration Project in late 2010 to intercept and retain Sr-90 contamination from the up-gradient groundwater as it passes through the wall. The PTW is located down gradient of the Main Process Plant, which is the source of the Sr-90 contamination.

4.1.3 The Design Life of the Permeable Treatment Wall system was 20 years, commencing in December 2010.

4.1.4 One of the primary factors that influenced the selection of this method to mitigate the Sr-90 ground water contamination in the North Plateau Area of the West Valley Demonstration Project Site was the low level of operation and maintenance efforts required after project completion.

4.1.5 Construction of the Permeable Treatment Wall Project began in August 2010 and was completed in December 2010.

4.1.6 Details of the Permeable Treatment Wall installation are shown on drawings 913-B-0098, Sheets 1-35 - North Plateau, Permeable Treatment Wall, Record Drawing Set.

- A. Additional details relating to the design and installation of the PTW are contained in wvdp-521, "north plateau permeable treatment wall installation report."

4.1.7 The Permeable Treatment Wall has two (2) primary components as follows:

A. BELOW GRADE PERMEABLE TREATMENT WALL

1. The PTW consists of an excavated trench, approximately 39 inches wide with a variable depth between 19 and 30 feet, that extends for 860-ft. feet.
2. As the trench was excavated, it was simultaneously backfilled with Zeolite. Zeolite is the medium that allows for the ion exchange process to capture and retain the Sr-90 contamination from the groundwater that passes through the wall.
3. A One-Pass Trenching method was used to install the Permeable Treatment Wall, which allowed for a continuous trench for the full 860-ft. length.
4. The PTW was installed along the centerline of an existing site road with the Zeolite backfill material being brought up to approximately the elevation of the existing road surface.
5. After the installation of the PTW, the Zeolite was covered with a 7-ft. wide reinforced Geosynthetic Clay Liner, (Bentomat CL www.cetco.com) consisting of a layer of sodium bentonite sandwiched between two geotextiles, needle punched together and laminated to form a thin flexible membrane liner.
6. The Geosynthetic Clay Liner was covered with a 15-ft. wide geotextile fabric (Geotex® 1071 www.geotextile.com).
7. An underground utility warning tape, with the words "Caution Permeable Treatment Wall Below" was placed on top of the geotextile fabric before these materials were covered with a minimum 8-inch layer of compacted bank run gravel.
8. The bank run gravel extends from the outside edge of the former access road to the Soil Containment Structure. See WVDP-516, "North Plateau Permeable Treatment Wall Protection and Best Management Plan."
9. After the PTW was installed and covered, 66 monitoring wells were installed along the centerline of the PTW (within the zeolite), and up and down-gradient of the centerline of the PTW. These monitoring wells are used to monitor the effectiveness of the wall. (See WVDP-512, "North Plateau Permeable Treatment Wall Performance Monitoring Plan," for further discussion on the monitoring wells.)

B. ABOVE GRADE SUPPORT INFRASTRUCTURE CONSISTS OF THE FOLLOWING COMPONENTS:

1. Surface Area directly above the Permeable Treatment Wall
 - a. The area directly above the PTW is approximately 26 feet wide and is approximately 860-ft. long.

- b. Although there are no specific operational requirements for the Surface Area directly above the PTW, there are maintenance items.
 - c. To help maintain this area in a dry and stable condition, the cross slope is graded away from the PTW the longitudinal surface is sloped toward the Inner Catch Basin located at PTW Station 106+75.
 - d. To help to minimize maintenance requirements in this area, vehicular traffic is limited to low-ground-pressure vehicles with either wide tracks or balloon tires (e.g., Gator, Tracked Skid Steers, or ATV type vehicles).
 - e. Excavation into the below grade portion of the Permeable Treatment Wall shall be kept to a minimum and shall be thoroughly assessed before commencement of excavation activities.
 - f. Excavation into the below grade portion of the Permeable Treatment Wall shall be in accordance with WV-370, "Underground Utility Review Policy."
2. Access Road around PTW Soil Containment Structure
- a. The PTW was installed along the center line of the existing site access road. Thus, a replacement access road was needed. This new access road is south of the PTW.
 - b. The cross-grade of the new access road is away from PTW, while the longitudinal grade is sloped toward the Outer Catch Basin located at the intersection of the south side of the road, at the intersection of the north-south/east-west legs of the New Access Road. This grading configuration is intended to keep the new access road properly drained.
 - c. The base material for the new access road is bank run gravel, placed upon a geotextile fabric.
 - d. The minimum thickness of the New Access Road is 12 inches.
3. Local Area Storm Water Drainage
- a. The area in and around the Permeable Treatment Wall and the Access Road is relatively flat and isolated. Rain fall in this area is collected and discharged away from the area. The drainage system is designed to capture and discharge all storm water flow.
 - b. The Local Area Storm Water Drainage system consists of the following sub-components:

1) Inner Catch Basin

The Inner Catch Basin is located at PTW Station 106+75, where the north-south and east-west legs of the PTW intersect.

The Inner Catch Basin is referred to as the Inner CB on Drawing 913-B-0098, Sheet 24 of 35 – North Plateau Permeable Treatment Wall Storm Drainage Plan.

The original configuration for the Inner Catch Basin was for the water that entered the Catch Basin to flow south to the S-09 Storm Water Outfall at Lagoon 3.

The current configuration has this Catch Basin sealed with a steel plate, allowing the storm water that reaches the catch basin to flow north via a paved swale to point north.

2) Inner Catch Basin Discharge Swale

The Inner Catch Basin Discharge Swale collects storm water from the north-south/east-west legs of the surface area above the PTW and carries it north to a down-gradient area where the storm water dissipates into a grassy area.

3) Outer Catch Basin (in Access Road)

The Outer Catch Basin is located on the south side of the PTW, at the intersection of the north-south leg and the east-west leg of the New Access Road.

See Drawing 913-B-0098, Sheet 24 of 35 – North Plateau Permeable Treatment Wall Storm Drainage Plan.

The Outer Catch Basin collects surface water from the Access Road and adjacent areas.

This catch basin flows to a Closed Junction Box, then flows onto the Inlet Catchment Basin where it becomes part of the S-09 Storm Water Outfall Discharge System.

4) Closed Junction Box

The Closed Junction Box is located on the west side of the PTW (approximately halfway down the north-south leg) at PTW Station 108+00.

The Closed Junction Box is labeled “Catch Basin” on Drawing 913-B-0098, Sheet 24 of 35 - North Plateau Permeable Treatment Wall Storm Drainage Plan.

The Closed Junction Box has a solid cover and does not receive any surface water.

The Closed Junction Box intercepts storm water lines from the Inner Catch Basin and the Outer Catch Basin (now closed), and carries that water to the Inlet Catchment Basin.

5) Inlet Catchment Basin

The Inlet Catchment Basin was constructed in 2015 as part of the S-09 Storm Water Discharge Relocation Project which changed the S-09 discharge point from the Lagoon 3 Embankment to the Parshall Flume Area in Franks Creek.

The Inlet Catchment Basin is a grout mattress lined recessed area which receives storm water from the Local Area Storm drainage system, storm water from the areas adjacent to the Inlet Catchment Basin, and the Smart Ditch, which conveys storm water from other areas of the WVDP Site.

Storm water collected by the Inlet Catchment Basin flows through a 48-in. diameter corrugated polyethylene pipe to the Parshall Flume.

4. Storm Water Collection at LSA3/4

- a. The west end of the PTW extends into the niche area between LSA3 and LSA4. To divert storm water that collects into this area and rain water coming off sections of the LSA3 and LSA 4 roofs, a Smart-Ditch™ was installed in this area to carry the storm water runoff over the top of the PTW and discharge it into an open field down-gradient of the PTW.

4.2 Inspection, Operational & Maintenance Requirements for the Permeable Treatment Wall

4.2.1 Below Grade Permeable Treatment Wall

A. INSPECTION REQUIREMENTS

- 1. The PTW is below grade and passive, therefore, there are no specific inspection requirements per this WVDP.
- 2. Inspection of the groundwater monitoring wells installed in the PTW is performed in accordance with the PTW Performance Monitoring Plan (WVDP-512).

B. OPERATIONAL REQUIREMENTS

- 1. The PTW is below grade and passive. Therefore there are no operational requirements.

C. MAINTENANCE REQUIREMENTS

- 1. The PTW is below grade and passive. Therefore there are no maintenance requirements.

4.2.2 Above Grade Support Infrastructure

A. SURFACE AREA ABOVE THE PTW

1. Inspection Requirements

- a. On a monthly basis, unless snow covered, inspect the surface area above the PTW for signs per the items on the North Plateau Monthly Inspection Report form.
- b. Record findings on the North Plateau Monthly Inspection Report form.
- c. Take Photographs, as required, and insert them into the Inspection Report form.
- d. Label deficiencies on the Photographs
- e. If there are required corrective actions, inform Operations of the deficiencies.

2. Operational Requirements

- a. None

3. Maintenance Requirements

- a. Apply herbicide to the surface area to control vegetation.

B. ACCESS ROAD

1. Inspection Requirements

- a. On a monthly basis, unless snow covered, inspect the Access per the items on the North Plateau Monthly Inspection Report form.
- b. Record findings on the North Plateau Monthly Inspection Report form.
- c. Take photographs, as required, and insert them into the Inspection Report form.
- d. Notify Operations of any maintenance requirements.

2. Operational Requirements

- a. DO NOT use road salt or salt laced sand on the Access Road, nor any calcareous materials (e.g., crushed limestone) per WVDP-516.
- b. Post a sign at the entrance to the PTW Access Road stating that road salt and calcareous materials cannot be used beyond the sign.

3. Maintenance Requirements
 - a. If ruts or potholes form, correct them as soon as practical. Only bank run gravel or other Engineering-approved materials shall be used for road repairs.
 - b. Assure the warning sign referenced above is in place adjacent to the southeast corner of the Shipping Depot Office.

C. LOCAL AREA STORM WATER DRAINAGE SYSTEM

1. Inspection Requirements
 - a. On a monthly basis, unless snow covered, inspect all of the components of the Local Area Storm Water Drainage System per the items on the North Plateau Monthly Inspection Report form.
 - b. Record findings on the North Plateau Monthly Inspection Report form.
 - c. Take Photographs, as required, and insert them into the Inspection Report form.
 - d. Notify Operations of any maintenance requirements.
2. Operational Requirements
 - a. None
3. Maintenance Requirements
 - a. Address items identified during the monthly inspections.
 - b. Inner Catch Basin
 - 1) Maintain the seal around the cover plate on the Catch Basin.
 - 2) Remove any debris from the cover.
 - c. Inner Catch Basin Drainage Swale
 - 1) Remove any debris and sediment in the asphalt swale
 - d. Outer Catch Basin
 - 1) Maintain the Catch Basin Clear of Debris.
 - 2) Fill Potholes that form around the Catch Basin with Bank Run Gravel
 - 3) Remove any debris that has entered the Catch Basin
 - e. Closed Junction Box
 - 1) If the Outer Catch Basin is not draining properly, remove the cover from the Closed Junction Box. Remove any debris that may be in the junction box.

- f. Inlet Catchment Basin
 - 1) Remove debris and excessive sediment that has accumulated in the invert of the Inlet Catchment Basin.
- D. STORM WATER COLLECTION AT LSA3/4
 - 1. Inspection Requirements
 - a. On a monthly basis, unless snow covered, inspect all components of the Storm Water Collection at LSA3/4 per the items on the North Plateau Monthly Inspection Report form.
 - b. Record findings on the North Plateau Monthly Inspection Report form.
 - c. Take Photographs, as required, and insert them into the Inspection Report form.
 - d. Notify Operations of any maintenance requirements.
 - 2. Operational Requirements
 - a. None
 - 3. Maintenance Requirements
 - a. Remove debris that may accumulate in the Smart-Ditch™.

5.0 SYSTEM DESCRIPTION, INSPECTION, OPERATIONAL AND MAINTENANCE REQUIREMENTS FOR THE S-09 STORM WATER DISCHARGE OUTFALL AND PARSHALL FLUME AREA

5.1 System Description - S-09 Storm Water Discharge Outfall and Parshall Flume Area consists of the following components:

5.1.1 Smart Ditch Drainage Swale

- A. Prior to installation of the PTW, storm water from areas up-gradient of the location of the PTW flowed directly through where the PTW was going to be installed. because this water would impact the function of the PTW, it had to be collected and diverted away from the north plateau area. to do this, a new, 12-inch wide and 24-inch wide, open, trapezoidal ditch, consisting of pre-formed polyethylene sections, anchored to the ground, was installed. the product used is Smart-Ditch™ (www.smartditch.com).
- B. The water entering the Smart-Ditch™ flows to the inlet catch basin and then onto the parshall flume via a 48-in. diameter corrugated polyethylene lagoon pipe and a grout mattress swale.
- C. The flow capacities of the Smart-Drain™ are limited to that of a 10 year storm event, before storm water overflows the line.
- D. The overflow water will still flow to the inlet catchment basin and on to the S-09 storm water outfall discharge point at the parshall flume in franks creek.

- E. The hydraulic capacity of the storm water system from the inlet catchment basin to the parshall flume is equal to the volume generated by a 100-yr. storm event.
- F. After the Smart-Ditchtm was installed in 2010 the area under the liner panels became undermined. to correct this condition, the area between the liner panels and the earth was filled with a water cement grout in 2015.

5.1.2 Inlet catchment basin

- A. The inlet catchment basin is a grout mattress lined catchment area that collects storm water runoff from adjacent areas, the Smart-Ditchtm, and the outer catch basin of the PTW area.
- B. Storm water exits the inlet catchment basin via a 48-in. polyethylene pipe (pe), which flows to the parshall flume in franks creek.

5.1.3 48-in. discharge pipe between the inlet catchment basin and drop structure

- A. The 48-in corrugated pe pipe carries water from the inlet catchment basin is to the drop structure.
- B. The pipe run is approximately 230-ft. long.
- C. There are 4 bentonite dams located on the westerly end of this to prevent ground water from traveling along the bedding under the pipe.
- D. There are 3 concrete ballast dams on the easterly end of this pipe to prevent a high ground water table from lifting the empty pipe.

5.1.4 Drop structure

- A. The drop structure is located on the 48-in. diameter pe pipe that carries storm water from the inlet catchment basin to franks creek.
- B. The drop structure has an 8-ft. inside diameter and is approximately 20-ft. high.
- C. A concrete invert was cast in the bottom of the drop structure to direct flow out of the manhole to the 48-in. pipe that continues toward the parshall flume.
- D. A flat surface area was established in the invert to accommodate the placement of a ladder into the drop structure.
- E. When the drop structure was installed, "soil soundings" were performed on the proposed invert for the drop structure. the "soil soundings" did not indicated there was sufficient soil strength to adequately support the weight of the structure. as such, the invert was over-excavated an additional 2-ft. where stiffer soils were encountered, tested and determined to be sufficiently strong to support the drop structure. a 2-ft. thick x 12-ft. wide x 12-ft. long, 4000-psi mud mad was placed on the new invert to bring the excavation back to the design invert.

5.1.5 48-in discharge pipe between drop structure and grout mattress swale

- A. A 60-ft. run of 48-in. diameter corrugated pe pipe extends out of the drop structure and continues to the grout mattress swale.

- B. There are 2 concrete anchor dams located on this section of pipe to prevent the pipe from moving down gradient.

5.1.6 Grout mattress swale

- A. A 6-in. thick grout mattress swale extends from the end of the 48-in. discharge pipe from the drop structure and extends to the existing grout mattress at the parshall flume where it ends at a reinforced concrete apron that is keyed into the existing grout mattress at the parshall flume.

5.1.7 Retaining wall in franks creek

- A. A retaining wall was needed along the shore of franks creek to support the grout mattress swale that extends to the existing grout mattress at the parshall flume.
- B. The retaining wall was constructed with 2-ft. x 2-ft. x 6-ft. long precast concrete blocks, with a 2-ft offset from one row to the next.
- C. The maximum number of rows of blocks is 6.
- D. Two - 3-in. x 3-in. x ¼-in. thick x 2-in. wide stainless steel clip angles were used on the stream side of each block to prevent the blocks from sliding outward. a 5/8-in. diameter drop-in anchor with a 5/8-in x 2-in. long bolt was used to secure the clip angles to the blocks.

5.1.8 Debris barriers in franks creek

- A. Debris barriers were installed across franks creek in 1995, when the parshall flume area was constructed. the purpose of the debris barriers is to capture large debris carried downstream by storm flow to help prevent this debris from plugging the discharge pipes that flow under the security fence and/or building up on the security fence.

5.1.9 Flow diverters in franks creek

- A. There are "still water" areas just upstream of the discharge pipes that extend under the security fence where stream sediment settles and creates "sediment bars." these "sediment bars" must be removed when they begin to affect flow conditions at the parshall flume. to eliminate the need to clean the sediment, 2 - flow diverters were installed on the debris barriers to change the flow patterns in the stream to keep these areas flushed out.
- B. The flow diverters can be adjusted to change the flow pattern if needed.

5.1.10 Parshall flume grout mattress

- A. The parshall flume was installed in 1995 which included the covering of the areas adjacent to the parshall flume with a 6-in. thick grout mattress to minimize risk of the security fence being undermined.
- B. The upstream edge of the grout mattress was keyed into the stream bed to prevent the mattress from being undermined.
- C. The grout mattress has remained stable for 20 years and has not needed any maintenance or repair.

5.1.11 Parshall flume in franks creek

- A. The parshall flume was installed in franks creek in 1995 to provide a means to measure low water flow in franks creek at the point where the waters from franks creek exit the WVDP site.

5.1.12 48-in. diameter overflow pipes and security bar screens

- A. The 48-in. corrugated aluminum overflow pipe at the security fence crossing carry storm water under the security fence. the inverts of the 48-in. pipes are 6-in. higher than the invert of the parshall flume so they will not carry water until the depth of the water in franks creek exceeds 6-in.
- B. There are bar screens over the inlet ends of the 48-in. culverts for security purposes.

5.1.13 Security fence at franks creek

- A. The security fence that crosses over the culvert pipes in franks creek consists of 5 individual sections. the fence was installed with this configuration so that a fence failure, due to excessive debris buildup and resulting water pressure on the upstream side does not cause the entire fence line to fail, just individual sections, which are easily repaired.
- B. The base welds on the fence sleeves at the base of the fence sections are the part of the fence designed to fail.
- C. Between 1995 and present (November 2015), failure has not occurred.

5.1.14 Retaining wall at bottom of parshall flume stairs

- A. A retaining wall, consisting of screw-in anchors, soldier columns, knee braces and wood timbers was installed to stabilize the base of the stairs leading down to the parshall flume.

5.1.15 Contamination area boundary

- A. A radiological boundary around the parshall flume area.

5.1.16 Equipment access road on NYSERDA property

- A. A stone surfaced roadway on the outside side of the WVDP security fence, on NYSERDA property, that leads from security gate 20 down to the parshall flume area.

5.1.17 Side slopes adjacent to the grout mattress swale

- A. Side slopes created when the grout mattress swale was installed.

5.1.18 Electrical junction boxes for weir shed electrical service

- A. Junction boxes at the points where the underground conduit interfaces with the armored cable mounted to the chain-link fence.

5.2 Inspection, operational and maintenance requirements for the S-09 storm water discharge outfall and parshall flume area

5.2.1 Inspection requirements

- A. On a monthly basis, inspect the S-09 storm water discharge outfall and parshall flume area per the items on the north plateau monthly inspection report form.
- B. Record findings on the north plateau monthly inspection report form.
- C. Take photographs, as required, and insert them into the north plateau monthly inspection report form.
- D. Notify operations of any maintenance requirements.

5.2.2 Operational requirements

- A. Relocate the flow diverters to change flow patterns, if directed by engineering.

5.2.3 Maintenance requirements

- A. Only as identified by the monthly inspections.

6.0 SYSTEM DESCRIPTION, INSPECTION, OPERATIONAL AND MAINTENANCE REQUIREMENTS FOR LAGOON 3 EMBANKMENT

6.1 System description – lagoon 3 embankment consists of the following components:

6.1.1 Catch basin at North East corner of lagoon 3

- A. This catch basin used to receive all of the S-09 storm water discharge until the S-09 storm water discharge was relocated to the parshall flume area.
- B. The only water flowing to this catch basin is surface water from the crest of the lagoon 3 embankment.
- C. Water from this catch basin discharges to the lagoon 3 embankment via a 24-in. polyethylene culvert pipe.

6.1.2 Discharge pipe from North East catch basin

- A. This is a 24-in. corrugated polyethylene pipe which is severely undermined at the point where the pipe daylight through the lagoon 3 embankment.

6.1.3 Fence, retaining wall and guide rail along the crest of lagoon 3

- A. An existing fence, retaining wall and guide rail along the outside edge of the crest of the lagoon 3 embankment.
- B. The fence, retaining wall and guide rail is rotating outward from the embankment.

6.1.4 Inclinometer & Piezometer outer casings

- A. Two - 24-in. aluminum vertical casing pipes were installed around and existing inclinometer and piezometer in the lagoon 3 embankment to protect the inclinometer and piezometer casing from the surficial slope failure that is occurring at the location of the instruments.
- B. The vertical casings are moving with the surrounding soils which protects the 2-in. casing pipes from shearing off.

6.1.5 Access path & stairs to weir shed

- A. Because the existing stairs to the lagoon 3 weir shed have been distorted as a result of the existing surficial failure on the lagoon 3 embankment along with the excessive erosion of the lagoon 3 embankment at the former S-09 storm water outfall, a new pathway to the lagoon 3 weir shed was created.

6.1.6 Former S-09 discharge

- A. This was the point where the S-09 storm water discharged onto the lagoon 3 embankment.
- B. This discharge caused significant erosion within the channel leading down to Erdman brook.
- C. The discharge pipes from the storm water outfall have been significantly undermined as a result of the channel erosion.

6.1.7 Drainage swale on crest of lagoon 3

- A. A swale existing along the lagoon 3 embankment crest, which drains water off the crest to minimize the effects that storm water would otherwise have on the embankment.

6.2 Inspection, operation & maintenance requirements for the lagoon 3 embankment

6.2.1 Inspection requirements

- A. On a monthly basis, inspect the S-09 storm water discharge outfall and parshall flume area per the items on the north plateau monthly inspection report form.
- B. Record findings on the north plateau monthly inspection report form.
- C. Take photographs, as required, and insert them into the inspection report form.
- D. Notify operations of any maintenance requirements.

6.2.2 Operational requirements

A. None

6.2.3 Maintenance Requirements

A. Only as identified by the monthly inspections.

7.0 RECORDS

The following forms, data sheets, logs, reports, or any other form of documentation are considered records and when generated are to be prepared, maintained, and transferred to Records in accordance with WVDP-262 and WVDP-529. Refer to the CHBWW Master File Plan for further information.

North Plateau Monthly Inspection Report - Permeable Treatment Wall
North Plateau Monthly Inspection Report - S-09 Storm Water Discharge Outfall & Parshall Flume
North Plateau Monthly Inspection Report - Lagoon 3 Embankment

8.0 REFERENCES

SOP 002-18, Low Level Waste Water (LLW2) Treatment, latest revision
WVDP-512, North Plateau Permeable Treatment Wall Performance Monitoring Plan, latest revision
WVDP-516, North Plateau Permeable Treatment Wall Protection & Best Management Plan, latest revision
WVDP-521, North Plateau Permeable Treatment Wall Installation Report
913-B-0098, North Plateau – Permeable Treatment Wall – Record Drawings, latest revision
900-D-5851, Franks Creek 1995 Culvert Repair - Record Drawings, latest revision

9.0 ATTACHMENTS

Attachment A

North Plateau Monthly Inspection Report - Permeable Treatment Wall
North Plateau Monthly Inspection Report - S-09 Storm Water Discharge Outfall & Parshall Flume
North Plateau Monthly Inspection Report - Lagoon 3 Embankment

Attachment A

North Plateau Monthly Inspection Report Permeable Treatment Wall

Inspection Performed by <i>(print/sign)</i> :	
Inspection Date:	
Weather Conditions: <i>(e.g., raining, sunny, etc.)</i>	
Area Conditions: <i>(e.g., snow covered, ground frozen, etc.)</i>	
Is Follow Up Action Required:	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, issue an email to Operations requesting maintenance
Report Issued To:	<input checked="" type="checkbox"/> Operations <input checked="" type="checkbox"/> Engineering <input checked="" type="checkbox"/> Regulatory Strategy

Component Identification & Location: see 913-B-0098 most recent revision

Caution Sign at Access Road Entrance to PTW Area	
What to Look for - "No-Salt" caution sign is in position at southeast corner of Shipping Depot Office	
Comments/Deficiencies:	
PHOTOS	

Smart-Ditch™ Drainage Swale	
What to Look for - Excessive Sediment in invert of Smart-Ditch™, Voids under liner, woodchuck holes	
Comments/Deficiencies:	
PHOTOS	

Smart-Ditch™ Drainage Swale at LSA3/4	
What to Look for - Excessive Sediment in invert of Smart-Ditch™, Voids under liner, woodchuck holes	
Comments/Deficiencies:	
PHOTOS	

Surface Area Above the Permeable Treatment Wall	
What to Look for - Standing Water, Excessive Vegetation Growth, Damage from borrowing animals	
Comments/Deficiencies: None	
PHOTOS	

Swale Adjacent to/ Upgradient of PTW	
What to Look for - Sediment buildup, Standing Water	
Comments/Deficiencies:	
PHOTOS	

Access Road around PTW Soil Containment Structure	
What to Look for - Rutting along shoulder, Potholes, Standing Water	
Comments/Deficiencies:	
PHOTOS	

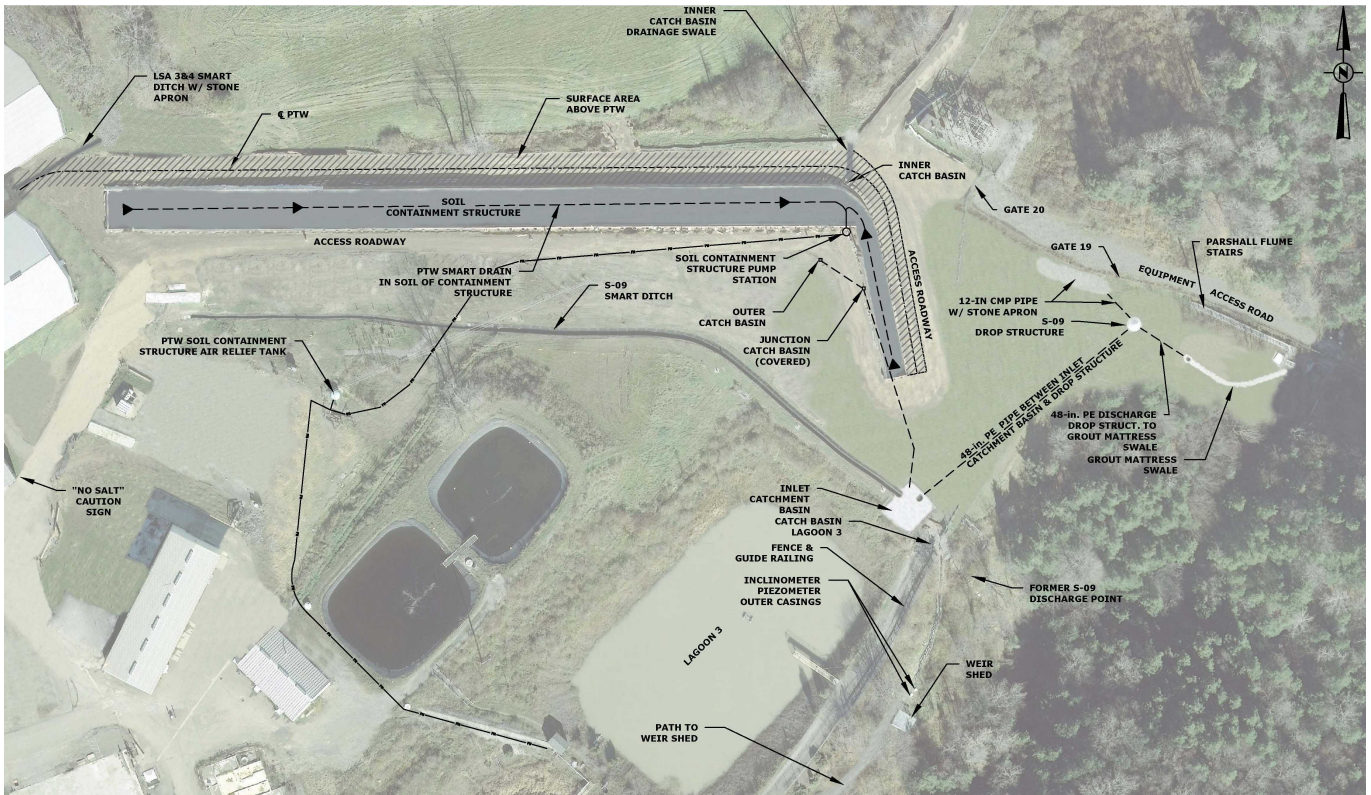
North Plateau Monthly Inspection Report Permeable Treatment Wall

North Plateau Monthly Inspection Report

S-09 Storm Water Discharge Outfall & Parshall Flume

Inspection Performed by (<i>print/sign</i>):	
Inspection Date:	
Weather Conditions: (e.g., raining, sunny, etc.)	
Area Conditions: (e.g., snow covered, ground frozen, etc.)	
Is Follow Up Action Required:	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, issue an email to Operations requesting maintenance
Report Issued To:	<input checked="" type="checkbox"/> Operations <input checked="" type="checkbox"/> Engineering <input checked="" type="checkbox"/> Regulatory Strategy

Component Identification & Location Photos



North Plateau Monthly Inspection Report S-09 Storm Water Discharge Outfall & Parshall Flume



Smart-Ditch™ Drainage Swale

What to Look for - Excessive Sediment in invert of Smart-Ditch™, Voids under liner, woodchuck holes

Comments/Deficiencies:

PHOTOS

48-in. PE Discharge Pipe between Inlet Catchment Basin & Drop Structure

What to Look for - Debris at inlet end in Inlet Catchment Basin, Surface depressions along centerline of pipe

Comments/Deficiencies:

PHOTOS

Drop Structure

What to Look for - Loose hand rail on structure, debris in invert, Hatch cover operates properly, excessive settlement around structure

Comments/Deficiencies:

PHOTOS

48-in. PE Discharge Pipe between Drop Structure & Grout Mattress Swale

What to Look for - Debris at discharge end of pipe, excess settlement around pipe

North Plateau Monthly Inspection Report S-09 Storm Water Discharge Outfall & Parshall Flume

Comments/Deficiencies:	
PHOTOS	

Grout Mattress Swale

What to Look for - Debris in invert, excessive erosion along edge of swale, debris buildup at concrete apron

Comments/Deficiencies:	
PHOTOS	

Retaining Wall in Franks Creek

What to Look for - Blocks are stable, evidence of movement

Comments/Deficiencies:	
PHOTOS	

Debris Barriers in Franks Creek

What to Look for - Excessive debris buildup on barriers

Comments/Deficiencies:	
PHOTOS	

Flow Diverters in Franks Creek

What to Look for - Diverters securely fastened, Diverters properly positioned to control sediment at Parshall Flume

Comments/Deficiencies:	
PHOTOS	

Parshall Flume Grout Mattress

What to Look for - Excessive wear, unexpected erosion at perimeter of grout mattress

Comments/Deficiencies:	
PHOTOS	

Parshall Flume in Franks Creek

What to Look for - Inlet to flume is blocked with debris

Comments/Deficiencies:	
PHOTOS	

48-in. diameter Overflow Pipes and Security Bar Screens

What to Look for - pipes are blocked with debris, bar screens securely fastened

Comments/Deficiencies:	
PHOTOS	

Security Fence at Franks Creek

What to Look for - Fence sections are secure, excess debris on fence, barbed wire taught

Comments/Deficiencies:	
PHOTOS	

North Plateau Monthly Inspection Report S-09 Storm Water Discharge Outfall & Parshall Flume

Retaining Wall at bottom of Parshall Flume Stairs	
What to Look for - Wall is secure, timber cribbing is sound	
Comments/Deficiencies:	
PHOTOS	
Contamination Boundary around Parshall Flume Area	
What to Look for - posts and chains/ropes in place	
Comments/Deficiencies:	
PHOTOS	

North Plateau Monthly Inspection Report S-09 Storm Water Discharge Outfall & Parshall Flume

Equipment Access Road on NYSERDA Property

What to Look for - erosion channels forming in roadway

Comments/Deficiencies:

PHOTOS

Side Slopes adjacent to Grout Mattress Swale

What to Look for - Excessive sloughing on slopes that would impact the drainage swale, retaining wall or maintenance path

Comments/Deficiencies:

PHOTOS

Electrical Junction Boxes for Weir Shed Electrical Service

What to Look for - Both Electrical Boxes are stable

Comments/Deficiencies:

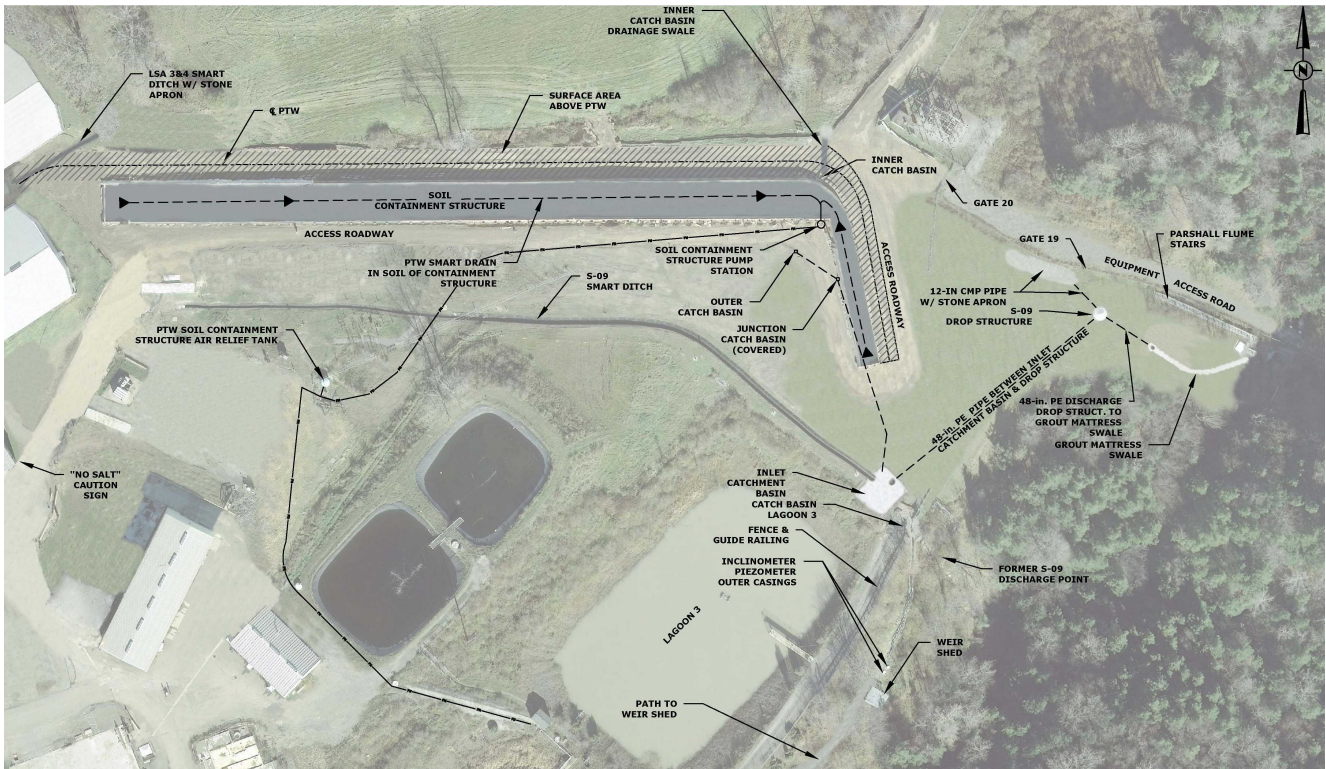
PHOTOS

North Plateau Monthly Inspection Report

Lagoon 3 Embankment

Inspection Performed by <i>(print/sign)</i> :	
Inspection Date:	
Weather Conditions: (e.g., raining, sunny, etc.)	
Area Conditions: (e.g., snow covered, ground frozen, etc.)	
Is Follow Up Action Required:	<input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, issue an email to Operations requesting maintenance
Report Issued To:	<input checked="" type="checkbox"/> Operations <input checked="" type="checkbox"/> Engineering <input checked="" type="checkbox"/> Regulatory Strategy

Component Identification & Location Photo



Catch Basin at North East Corner of Lagoon 3

What to Look for - Debris on grating

Comments/Deficiencies:

PHOTOS

North Plateau Monthly Inspection Report Lagoon 3 Embankment

Discharge Pipe from North East Catch Basin	
What to Look for - Continuing Erosion of the Embankment and undermining of the pipe	
Comments/Deficiencies:	
PHOTOS	

Fence, Retaining Wall and Guide Rail along the Crest of Lagoon 3	
What to Look for - Additional outward movement from last inspection, failure	
Comments/Deficiencies:	
PHOTOS	

Inclinometer & Piezometer Outer Casings	
What to Look for - Additional tilting, undue pressure on the inclinometer and piezometer tubing inside the casing	
Comments/Deficiencies:	
PHOTOS	

Access Path & Stairs to Weir Shed	
What to Look for - Erosion, tripping hazards	
Comments/Deficiencies:	
PHOTOS	

Former S-09 Discharge	
What to Look for - Further erosion of the channel from the previous inspection	
Comments/Deficiencies:	
PHOTOS	

Drainage Swale on Crest of Lagoon 3	
What to Look for - Excess vegetation, erosion, ponding	
Comments/Deficiencies:	
PHOTOS	

WVDP RECORD OF REVISION

Rev. No.	Description of Changes	Revision On Page(s)	Dated
0	Original Issue Affected organizations: EA, Infrastructure, Maintenance	All	04/14/11
1	General Revision – minor document revision to address CHBWV Transition Team Blue Sheet & Terminology Replacement Matrix comments. Updated company logo & name, department names, etc., throughout. Added repair steps for the EPDM Cover Material. Other editorial format changes made as needed. Affected organizations: NOS	All	10/16/13
2	General Revision – Updated EPDM Cover Repair Instructions at section 5.5. Added Note to Page 10 Affected organizations: Site Maintenance, NOS	ALL	06/18/14
3	Major Revision . Changed "QuickPrime Plus" to "QuickPrime Plus LVOC." Affected organizations Site Maintenance, NOS.	10-11	06/24/14
4	Major Revision Changed inspection and Maintenance of the PTW to include the S-09 Storm Water Outfall, Parshall Flume Area, and the Lagoon 3 Embankment. Affected organizations: Site Maintenance, NOS, Regulatory Strategy.	All	12/03/15
5	General Revision – Major Changes. Removed sections pertaining to PTW soil containment structure since it has been removed. Site Maintenance, NOS, Regulatory Strategy and Engineering are affected by these changes.	All	05/25/2022