WASHINGTON STATE DEPARTMENT OF ECOLOGY

Southwest Regional Office
Toxics Cleanup Program
PO Box 47775
Olympia, WA 98504-7775
360-407-6240

TRANSMITTAL MEMO

Date: March 26, 2013

TO: Mr. Aaron Galer
Williams – Northwest Pipeline

RE: Northwest Pipeline GP, Deer Island/Kalama #2 MS
SW1201

Subject: Explanation of Timeline

NOTE: **The determination date is the date Ecology approved the No Further Action status for the site. Final payment, EIM Data submission, once received, the NFA letter was released.**

Ecology Determination date: March 25, 2013

Email Customer Notification: March 26, 2013

Payment received date: May 1, 2013

EIM Data successfully uploaded: March 20, 2013

Ecology Determination letter mailed/sent: May 7, 2013

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

March 25, 2013

Mr. Aaron Galer
Environmental Scientist III
Williams – Northwest Pipeline
295 Chipeta Way # 1
Salt Lake City, UT 84108-1285

Re: No Further Action at the following Site:

- **Name:** Northwest Pipeline GP, Deer Island/Kalama #2 MS
- **Address:** 468 Hendrickson Road, Kalama, WA 98625
- **Facility/Site No.:** 6227324
- **Cleanup/Site ID No.:** 11730
- **VCP Project No.:** SW1201

Dear Mr. Galer:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your independent cleanup of the Northwest Pipeline GP, Deer Island/Kalama #2 MS facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Issue Presented and Opinion

Is further remedial action necessary to clean up contamination at the Site?

NO. Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70.105D RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided below.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following confirmed or suspected release(s):

- Mercury in Soil
- Arsenic in Soil

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Portnoy Environmental, Inc.; Site Assessment and Remedial Action Report, Deer Island/Kalama #2 Meter Station, 360 Elevator Road, Kalama, Washington, December 2012.

2. Williams Gas Pipeline, Environmental Partners, Inc., and Portnoy Environmental, Inc.; Terrestrial Ecological Evaluation Summary Report, Northwest Pipeline GP, Meter Station Facilities Throughout Washington State, dated November 2011.

3. Northwest Pipeline Corporation; Independent Remedial Action Report on Northwest Pipeline Corporation's Remediation of Mainline Meter Sites, September 28, 1993.

4. Northwest Pipeline Corporation; Report to Washington State Department of Ecology, Southwest Washington Region, Release and Independent Actions for Mercury Contaminated Natural Gas Meter Houses, June 21, 1991.

Those documents are kept in the Central Files of the Southwest Regional Office of Ecology (SWRO) for review by appointment only. You can make an appointment by calling the SWRO resource contact at (360) 407-6365.

This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that **no further remedial action** is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described below and in **Enclosure A.**

Formerly, the facility used two mercury-containing manometers, one positive displacement meter, and two thermowells. Mercury meters and thermowells both have the potential to release mercury. The meters and thermowells were located above grade, over a soil and gravel surface, within a metal-framed building. Site assessment and remedial work in 1990 indicated that mercury soil contamination was present. The 1990 remedial action consisted of the removal of six drums of gravel and soil from under and around the meter stand to a maximum depth of 30 inches. Verification sampling results from a three-point composite sample showed a residual concentration of 14 milligrams per kilogram (mg/kg) mercury in the remediated area. However, this remedial action was poorly documented and does not meet the substantive requirements of MTCA. Therefore, further Site assessment and remedial work was conducted in 2008 and 2009 that included the collection of 107 surface soil samples and 176 subsurface soil samples from a grid-based and targeted approach. A total of 308 soil samples were submitted for mercury analysis and 115 samples were submitted for arsenic analysis. Arsenic was analyzed because it has previously been detected above cleanup levels at other Northwest Pipeline sites. Several soil samples exceeded the mercury Method A Cleanup Level (CUL) for Unrestricted Land Uses value of 2.0 mg/kg and/or the Site-specific Terrestrial Ecological Evaluation (TEE) arsenic CUL of 16 mg/kg. This assessment was successful in defining the horizontal and vertical extent of contamination. Assessment results are shown in Figures DKMS-3 and -6. Arsenic contamination was limited to areas within the facility boundary and within 24 inches of the ground surface. Mercury contamination extended beyond the fenced boundary of the facility and was within 36 inches of the ground surface. The maximum arsenic and mercury concentrations were 41 mg/kg and 240 mg/kg, respectively.

The Toxicity Characteristic Leaching Procedure (TCLP), EPA Method 1311, was also run on four samples, including the sample with the highest detected mercury concentration (240 mg/kg). This sample had a TCLP result of 0.017 milligrams per liter (mg/L). Concentrations that are greater than the 0.2 mg/L mercury limit require a designation of characteristically hazardous waste under the Resource Conservation and

Recovery Act and a dangerous waste designation under the Washington State Dangerous Waste Regulations (WAC 173-303). In addition, total mercury concentrations greater than 100 mg/kg require a WT02 designation under the Washington Dangerous Waste Regulations.

2. Establishment of cleanup standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

The MTCA Method A mercury CUL for Unrestricted Land Use (2 mg/kg) was used for soil. As demonstrated in the above-referenced TEE Summary Report, the Method A CUL is also protective of the terrestrial ecological exposure pathway. However, the Site-specific TEE arsenic CUL of 16 mg/kg was below the arsenic Method A CUL.

Standard points of compliance were used for the Site. For soil cleanup levels based on human exposure via direct contact or other exposure pathways where contact with the soil is required to complete the pathway, the point of compliance was established in the soils throughout the Site from the ground surface to 15 feet below grade.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA.

The cleanup action consisted of the excavation and removal of source material (excavation and off-Site disposal of mercury- and arsenic-contaminated soil). This work was completed in December 2009 for mercury and June 2012 for arsenic.

4. Cleanup.

Ecology has determined the cleanup you performed meets the cleanup standards established for the Site.

A total of approximately 197.3 tons of non-hazardous soil was transported to Waste Management's Hillsboro landfill near Portland, Oregon. A total of 13.55 tons of WT02 soil were transported to Chemical Waste Management's Subtitle C facility in Arlington, Oregon. Additionally, one drum of soil was generated due to the presence of visible mercury. This drum was disposed at Chemical Waste Management's Retort facility in

Wisconsin. As shown in Table DKMS-3, a total of 77 final performance samples were analyzed for mercury. As shown in Table DKMS-4, a total of nine final performance samples were analyzed for arsenic. As shown in Figures DKMS-4, -4A, -5, -6, -7, -7A, and -8, the maximum depth of the excavation was 36 inches below grade. All final performance sample results were less than the applicable CULs.

Listing of the Site

Based on this opinion, Ecology will remove the Site from our Confirmed and Suspected Contaminated Sites List.

Limitations of the Opinion

1. **Opinion does not settle liability with the state.**

   Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

   - Resolve or alter a person's liability to the state.
   - Protect liable persons from contribution claims by third parties.

   To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. **Opinion does not constitute a determination of substantial equivalence.**

   To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. **State is immune from liability.**

   The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (SW1201).

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm. If you have any questions about this opinion or the termination of the Agreement, please contact me by phone at (360) 407-6247 or via e-mail at steve.teel@ecy.wa.gov.

Sincerely,

SSTeel

Steve Teel, LHG
Hydrogeologist
SWRO Toxics Cleanup Program

ST/ksc:Deer Island MS NFA SW1201

Enclosures (1): A – Description and Diagrams of the Site

By certified mail: (7010 2780 0000 2503 5765)

cc: Eric Koltes, Environmental Partners, Inc.
Mr. Alan Hopkins, P.G., Portnoy Environmental
Port of Kalama
Scott Rose – Ecology
Dolores Mitchell - Ecology

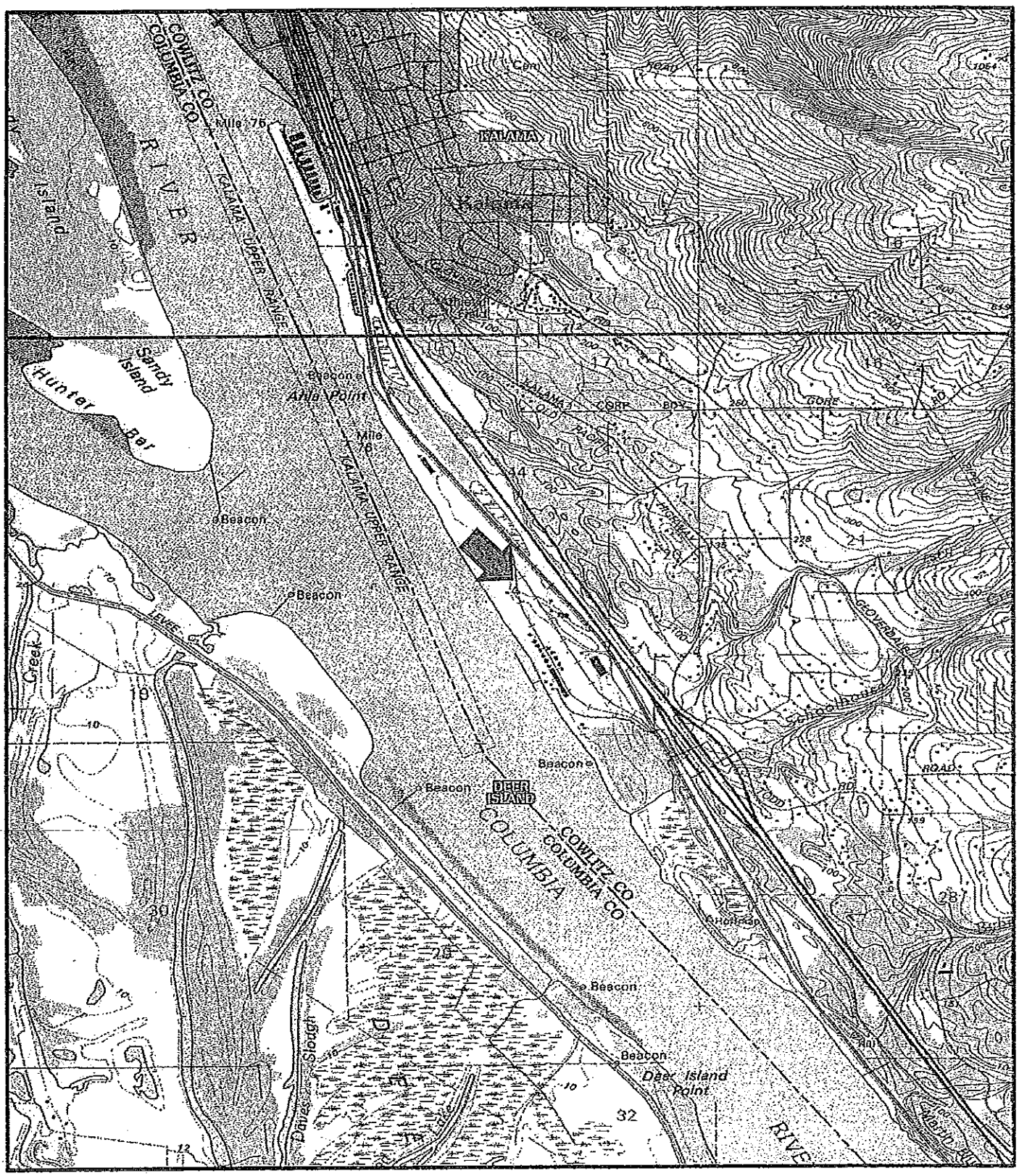
Enclosure A
Description and Diagrams of the Site

The Deer Island/Kalama #2 MS facility is located at 468 Hendrickson Drive in Kalama, Cowlitz County, Washington (45 59 18.45 N, -122 50 10.40 W). The entrance to the facility is at 360 Elevator Road. The facility consists of two adjacent natural gas meter stations within the same fenced enclosure where gas is being regulated and metered to a local distribution company or customer. This facility is part of the Northwest Pipeline/Williams Gas Pipeline (natural gas).

The primary contaminant of potential concern at meter stations is inorganic mercury. Releases of mercury could have occurred due to accidental spills during maintenance or calibration of differential pressure manometers (meters) that contained mercury. Northwest Pipeline/Williams Gas Pipeline (NWPL GP) used these meters to measure pressure on both sides of an orifice plate to calculate flow volumes through the pipeline, laterals, and taps that supply their customers. A secondary source of mercury releases are from "thermowells." Thermowells are test tube shaped "wells" installed in the meter station piping into which thermometers were placed to measure gas temperatures. In some instances, mercury was also placed in the well to improve the thermal conductance between the well and the thermometer. The thermowells did not contain large amounts of mercury, but spillage could occur when they were filled with mercury or when a thermometer was inserted or removed. Use of mercury at meter stations was phased out by 1993.

Formerly, the Deer Island portion of the facility used two mercury-containing differential pressure manometers and one thermowell and the Kalama #2 portion of the facility contained one positive displacement meter and one thermowell. Site assessment and remedial activities were conducted in 1990. The Deer Island remedial action consisted of the removal of six drums of gravel and soil from under and around the meter stand to a maximum depth of 30 inches. Verification sampling results from a three-point composite sample showed a residual concentration of 14 milligrams per kilogram (mg/kg) mercury in the remediated area. The 1990 assessment did not identify any contamination in the Kalama #2 portion of the facility. However, these remedial actions were poorly documented and did not meet the substantive requirements of MTCA. Construction and/or remedial activities conducted before 2005 at meter stations also may have resulted in the disturbance and potential spreading of mercury impacted soil. Additionally, at some meter stations, clean fill was placed over contaminated soil. Further assessment activities at the Site in 2008 and 2009, which did meet the substantive requirements of MTCA, confirmed and characterized the extent of mercury and arsenic contamination in soil which was then cleaned up.

ATTACHMENTS (from consultant report)
Figures DKMS-1 through -8
Tables DKMS-3 and -4



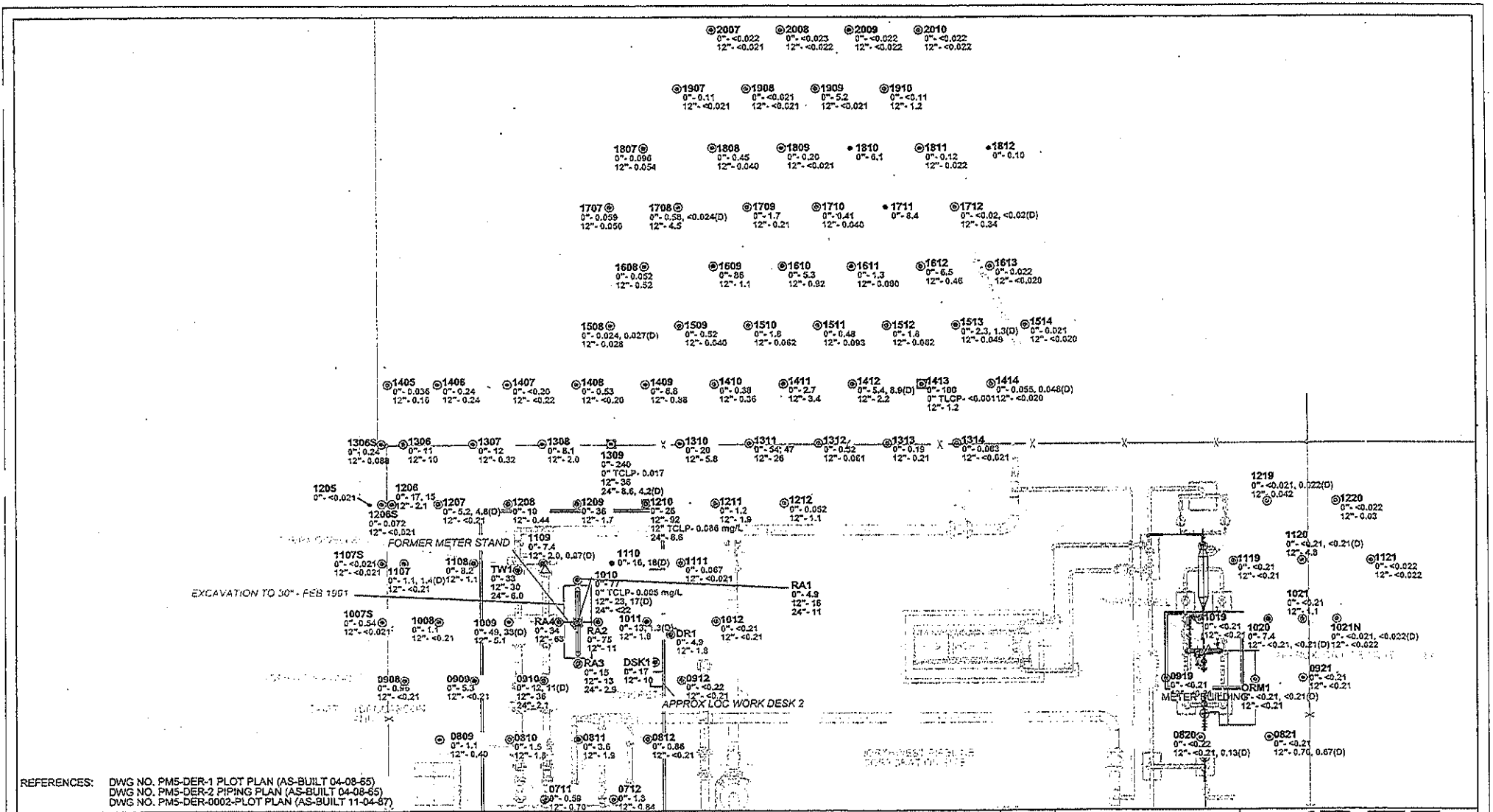
KEY: SOURCE: USGS 7.5 Minute Quadrangle (Topographic)

DEER ISLAND, OR-WA
KALAMA, WA

SCALE: APPROX. 1"=2000'

PROJECT	10179.07		
PREPARED FOR	NORTHWEST PIPELINE GP – WILLIAMS GAS PIPELINE		
LOCATION	45.98861N, 122.83620W		
SHEET 1 of 1	DRAWN BY ET	REVIEWED BY TLJ	DATE 9-14-2011

FIGURE DKMS-1
GENERAL VICINITY MAP
DEER ISLAND/KALAMA #2 METER STATION



REFERENCES:
DWG NO. PM5-DER-1 PLOT PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-2 PIPING PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-0002-PLOT PLAN (AS-BUILT 11-04-87)

KEY:

- SURFACE SAMPLE LOCATION
- SUBSURFACE SAMPLE LOCATION
- BOTH SURFACE AND SUBSURFACE SAMPLE LOCATION

GREEN - Hg SAMPLE RESULT <= CLEANUP LEVEL
RED - Hg SAMPLE RESULT > CLEANUP LEVEL
- THERMOWELL LOCATION

SCALE: 1"=10'

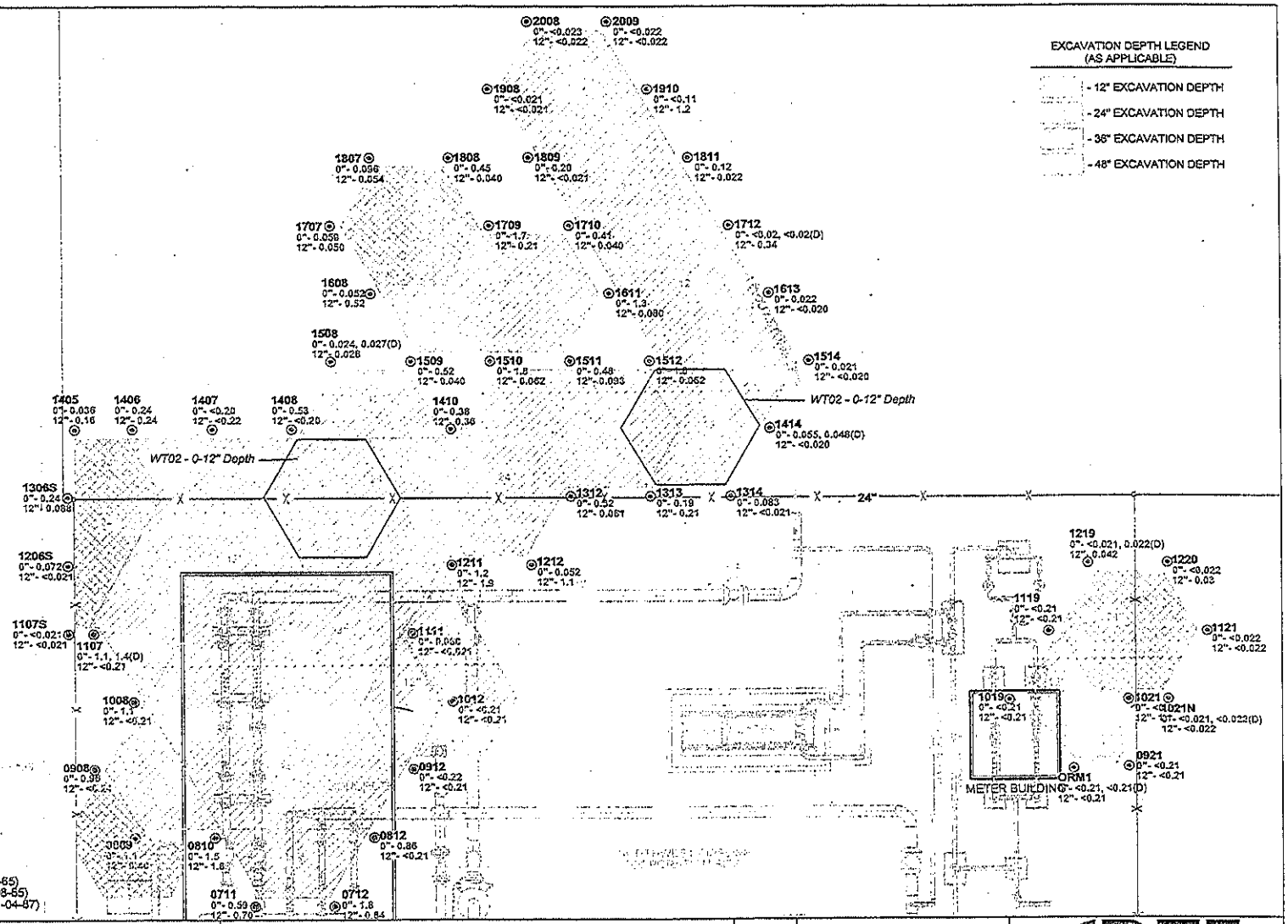
CLEANUP LEVEL
Hg - 2 mg/kg

ASSESSMENT SAMPLE NAMING CONVENTION:
Unless otherwise noted, the prefix "DKSS-" was applied to each labeled grid node sample followed by a colon with the sample depth indicated in inches (e.g., DKSS-1010:12 represents a sample collected at grid node 1010 at a depth of 12 inches below grade).

Field duplicate sample results are denoted with a '(D)'.

PROJECT	10179
PREPARED FOR	NORTHWEST PIPELINE GP
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.98861N, 122.8382W
SHEET 1 of 1	DRAWN BY TLJ / REVIEWED BY WAH / DATE 12-2011

FIGURE DKMS-2
ASSESSMENT RESULTS - MERCURY
DEER ISLAND/KALAMA #2 METER STATION



REFERENCES: DWG NO. PM5-DER-1 PLOT PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-2 PIPING PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-0002-PLOT PLAN (AS-BUILT 11-04-87)

KEY:

- SURFACE SAMPLE LOCATION
- SUBSURFACE SAMPLE LOCATION
- BOTH SURFACE AND SUBSURFACE SAMPLE LOCATION

GREEN - Hg SAMPLE RESULT DEFINING PERIMETER <= CLEANUP LEVEL

- PLANNED EXTENT OF REMEDIAL ACTION (DEPTH NOTED)
- WT02 AREA

SCALE: 1"=10'

CLEANUP LEVEL
Hg - 2 mg/kg

PERFORMANCE SAMPLE NAMING CONVENTION:

Performance sample IDs will have the prefix "DK-" AND a suffix of a colon with the sample depth indicated in inches (e.g., DK-0910/1009:12).

Field duplicate samples will be denoted with the suffix ".5" after the depth in inches (e.g., DK-1011:12.5 would be a duplicate of the bottom of excavation sample collected at grid node 1011 at a depth of 12 inches).

PROJECT	10179		
PREPARED FOR	NORTHWEST PIPELINE GP		
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.98881N, 122.8362W		
SHEET 1 of 1	DRAWN BY TLJ	REVIEWED BY WAH	DATE 12-2011

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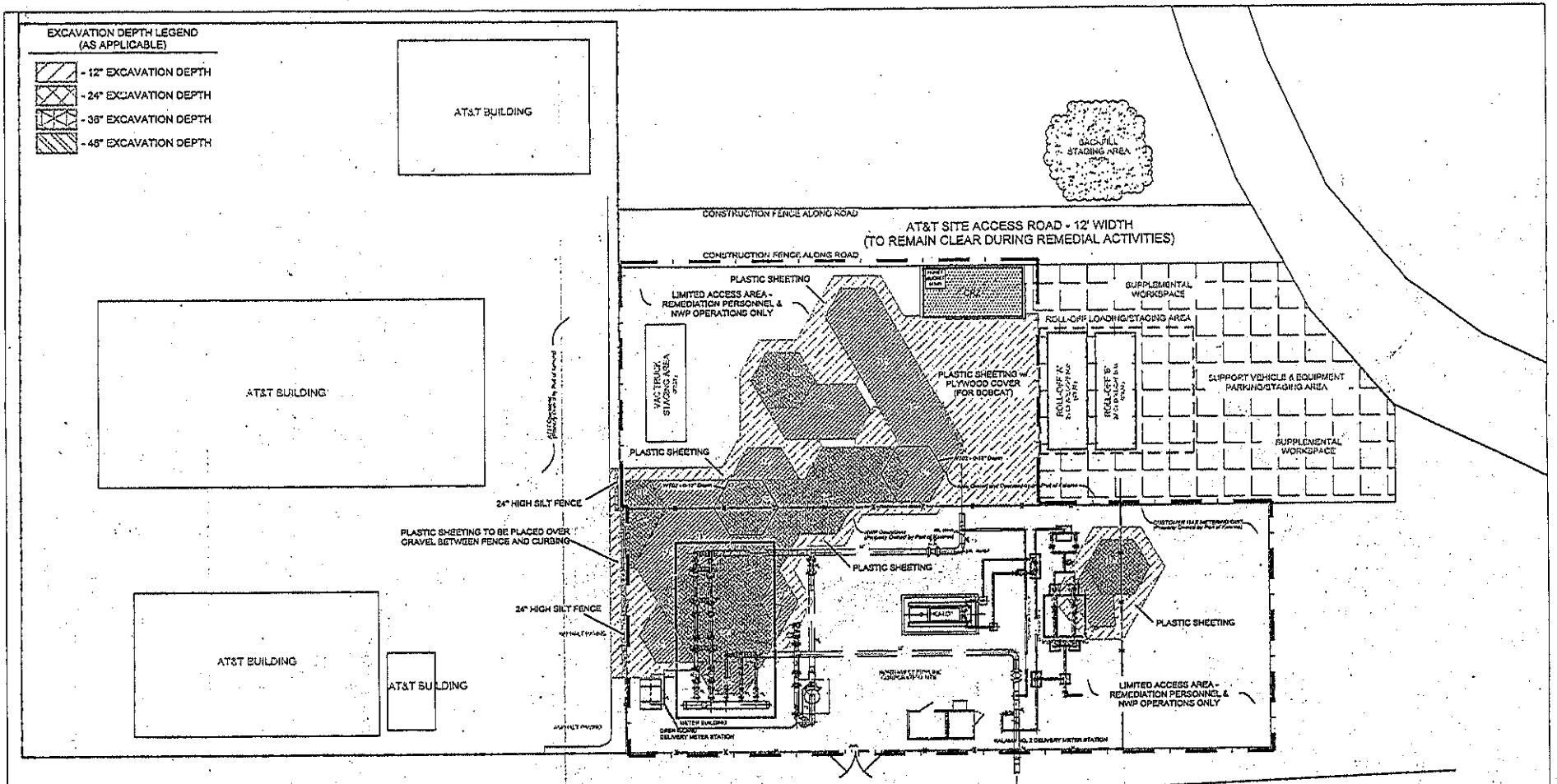
FIGURE DKMS-3
CORRECTIVE ACTION PLAN - MERCURY
DEER ISLAND/KALAMA #2 METER STATION



REFERENCES: DWG NO. PM5-DER-1 PLOT PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-2 PIPING PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-0002-PLOT PLAN (AS-BUILT 11-04-67)

KEY:

PLANT NORTH
TRUE NORTH

SCALE: 1"=30'

- PLANNED EXTENT OF REMEDIAL ACTION (DEPTH NOTED)
- WT02 AREA (0"-12")
- LIMITED ACCESS AREA - REMEDIATION PERSONNEL ONLY
- CONTAMINATION REDUCTION ZONE (CRZ).
- SUPPLEMENTAL WORKSPACE (ROLL-OFFS, EQUIP, VEHICLES, ETC.)
- PLASTIC SHEETING

CLEANUP LEVEL
Hg - 2 mg/kg

PERFORMANCE SAMPLE NAMING CONVENTION:

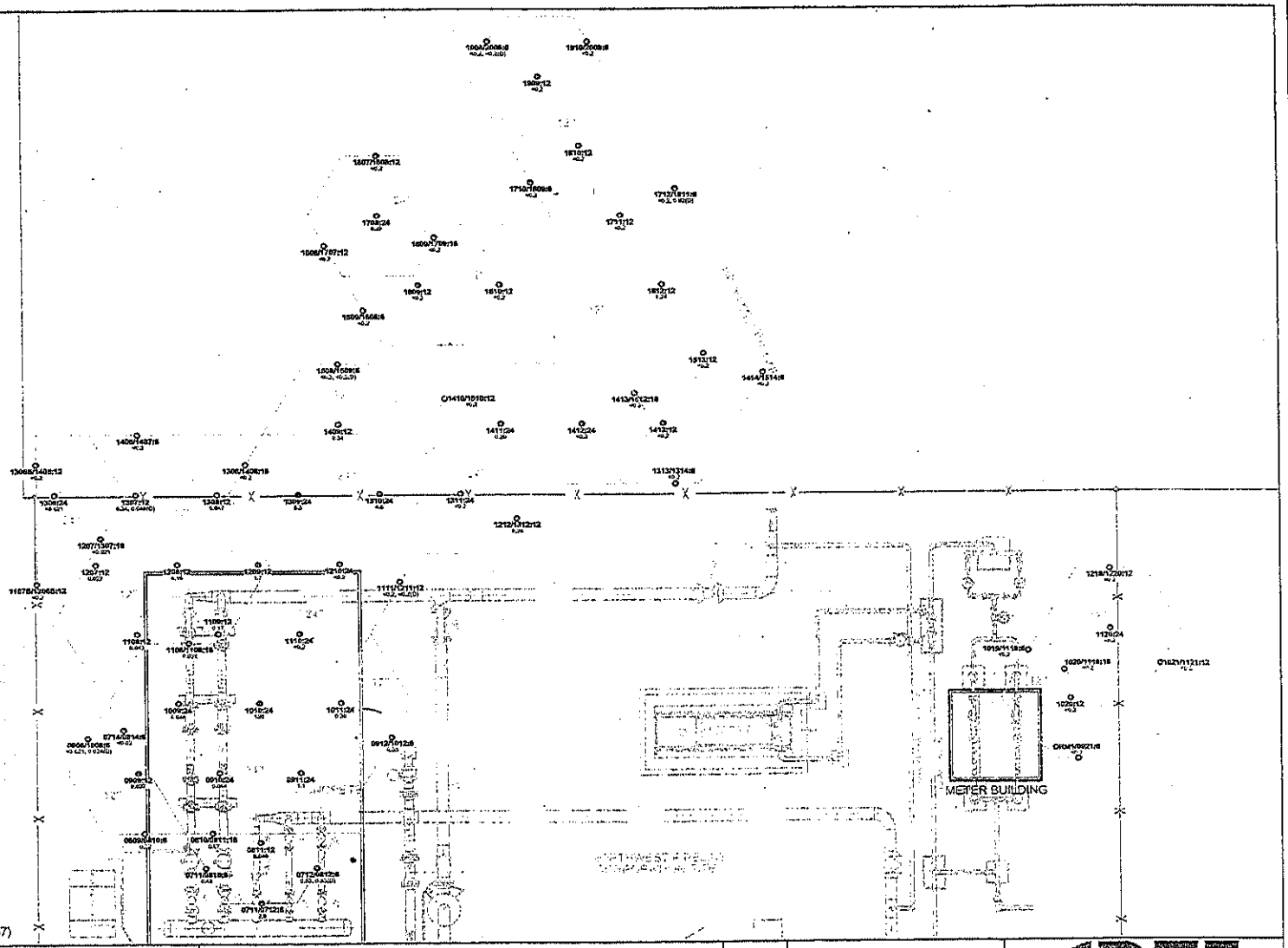
Performance sample IDs will have the prefix "DK-" AND a suffix of a colon with the sample depth indicated in inches (e.g., DK-0910/1009:12).

Field duplicate samples will be denoted with the suffix ".5" after the depth in inches (e.g., DK-1011:12.5 would be a duplicate of the bottom of excavation sample collected at grid node 1011 at a depth of 12 inches).

PROJECT	10173.01		
PREPARED FOR	WILLIAMS GAS PIPELINE - NWP		
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.80561N, 122.8362W		
SHEET 1 of 1	DRAWN BY TLJ	REVIEWED BY WAH	DATE 11-11-2009

Portnoy Environmental, Inc.

FIGURE DKMS-4
PROPOSED WORK SPACES
CORRECTIVE ACTION PLAN
DEER ISLAND/KALAMA #2 METER STATION



REFERENCES: DWG NO. PMS-DER-1 PLOT PLAN (AS-BUILT 04-08-65)
DWG NO. PMS-DER-2 PIPING PLAN (AS-BUILT 04-08-65)
DWG NO. PMS-DER-0002-PLOT PLAN (AS-BUILT 11-04-87)

KEY:

PLANT NORTH / TRUE NORTH

SCALE: 1"=10'

- PERFORMANCE SAMPLE LOCATION
GREEN - Hg SAMPLE RESULT <= CLEANUP LEVEL
RED - Hg SAMPLE RESULT > CLEANUP LEVEL
- INITIAL REMEDIAL EXCAVATION EXTENT (DEPTH NOTED)

CLEANUP LEVEL
Hg - 2 mg/kg

PERFORMANCE SAMPLE NAMING CONVENTION:
Performance sample IDs have the prefix "DK-" AND a suffix of a colon with the sample depth indicated in inches (e.g., DK-0910/1009:12).

Field duplicate samples results are denoted with a "(D)".

PROJECT	10179		
PREPARED FOR	NORTHWEST PIPELINE GP		
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.98851N, 122.8362W		
SHEET 1 of 1	DRAWN BY TLJ	REVIEWED BY WAH	DATE 12-2011

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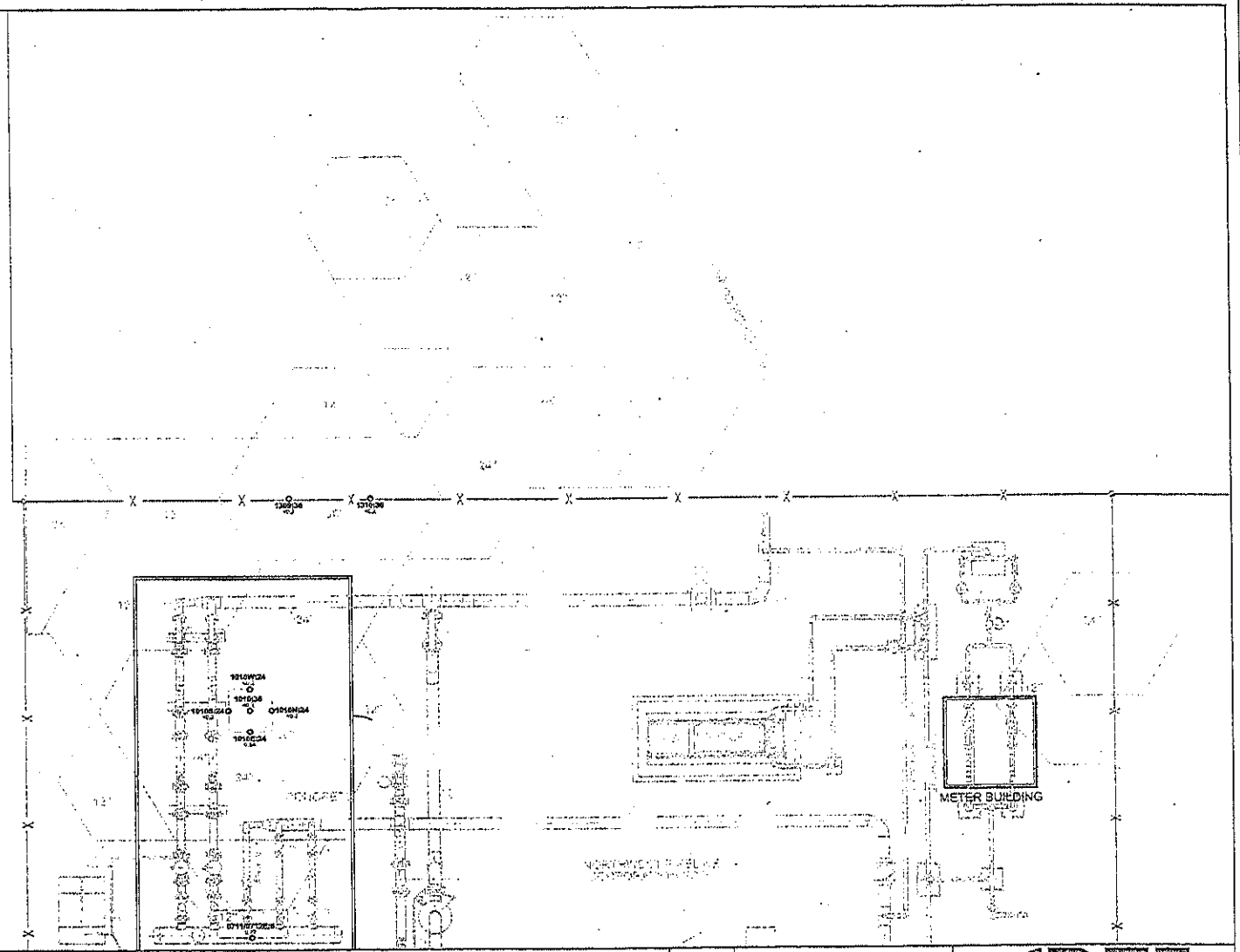
FIGURE DKMS-4
INITIAL LIMITS OF REMEDIAL EXCAVATION
MERCURY
DEER ISLAND/KALAMA #2 METER STATION



REFERENCES: DWG NO. PMS-DER-1 PLOT PLAN (AS-BUILT 04-08-65).
DWG NO. PMS-DER-2 PIPING PLAN (AS-BUILT 04-08-65).
DWG NO. PMS-DER-0002-PLOT PLAN (AS-BUILT 11-04-87)

KEY:

PLANT NORTH
TRUE NORTH

0 2.5 5 10
SCALE: 1"=10'

- PERFORMANCE SAMPLE LOCATION
GREEN - Hg SAMPLE RESULT <= CLEANUP LEVEL
- REMEDIAL EXCAVATION EXTENT (DEPTH NOTED) - RE-DIG 1
- REMEDIAL EXCAVATION EXTENT (DEPTH NOTED) - PREVIOUS PHASE

CLEANUP LEVEL
Hg - 2 mg/kg

PERFORMANCE SAMPLE NAMING CONVENTION:
Performance sample IDs have the prefix "DK-" AND a suffix of a colon with the sample depth indicated in inches (e.g., DK-0910/1009:12).

Field duplicate samples results are denoted with a "(D)".

PROJECT	10179		
PREPARED FOR	NORTHWEST PIPELINE GP		
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.98861N, 122.8562W		
SHEET 1 of 1	DRAWN BY TLJ	REVIEWED BY WAH	DATE 12-2011

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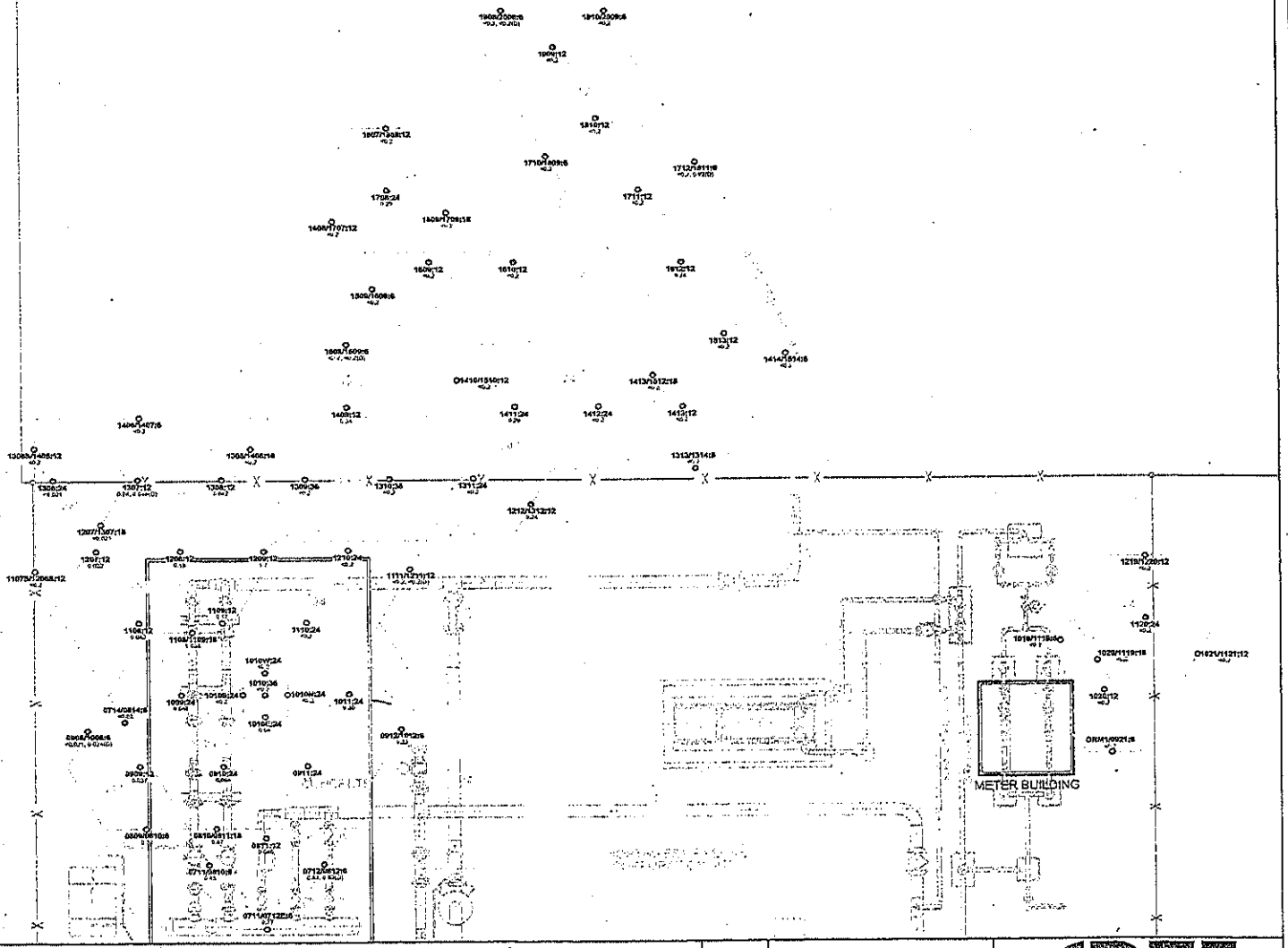
FIGURE DKMS-4A
LIMITS OF REMEDIAL EXCAVATION
RE-DIG 1 - MERCURY
DEER ISLAND/KALAMA #2 METER STATION



REFERENCES: DWG NO. PM5-DER-1 PLOT PLAN (AS-BUILT 04-08-65),
DWG NO. PM5-DER-2 PIPING PLAN (AS-BUILT 04-08-65),
DWG NO. PM5-DER-0002-PLOT PLAN (AS-BUILT 11-04-87)

KEY:

- ⊕ - PERFORMANCE SAMPLE LOCATION
- GREEN - Hg SAMPLE RESULT <= CLEANUP LEVEL
- [ ] - REMEDIAL EXCAVATION EXTENT (DEPTH NOTED) - FINAL

SCALE: 1"=10'

CLEANUP LEVEL
Hg - 2 mg/kg

PERFORMANCE SAMPLE NAMING CONVENTION:
Performance sample IDs have the prefix "DK-" AND a suffix of a colon with the sample depth indicated in inches (e.g., DK-0910/1009:12).

Field duplicate samples results are denoted with a "(D)".

PROJECT	10179		
PREPARED FOR	NORTHWEST PIPELINE GP		
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.98861N, 122.8362W		
SHEET 1 of 1	DRAWN BY TLJ	REVIEWED BY WAH	DATE 12-2011

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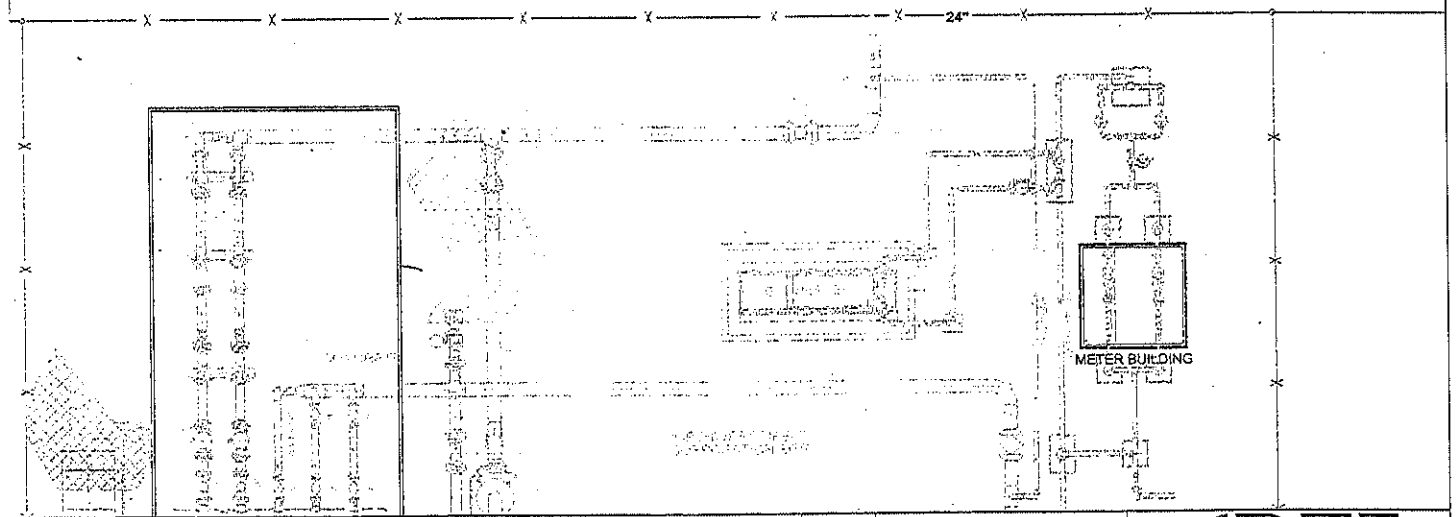
FIGURE DKMS-5
FINAL LIMITS OF REMEDIAL EXCAVATION
MERCURY
DEER ISLAND/KALAMA #2 METER STATION

EXCAVATION DEPTH LEGEND
(AS APPLICABLE)

- 12" EXCAVATION DEPTH
- 24" EXCAVATION DEPTH
- 36" EXCAVATION DEPTH
- 48" EXCAVATION DEPTH



REFERENCES:
DWG NO. PM5-DER-1 PLOT PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-2 PIPING PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-0002-PLOT PLAN (AS-BUILT 11-04-87)

KEY:

- SURFACE SAMPLE LOCATION
- SUBSURFACE SAMPLE LOCATION
- BOTH SURFACE AND SUBSURFACE SAMPLE LOCATION

SAMPLE - Hg SAMPLE RESULT DEFINING PERIMETER <= CLEANUP LEVEL

- PLANNED EXTENT OF REMEDIAL ACTION (DEPTH NOTED)

PLANT NORTH
TRUE NORTH

SCALE: 1"=10'

CLEANUP LEVEL
Hg - 2 mg/kg
As - 16 mg/kg

PERFORMANCE SAMPLE NAMING CONVENTION:

Performance sample IDs will have the prefix "DK-" AND a suffix of a colon with the sample depth indicated in inches (e.g., DK-0910/1009:12).

Field duplicate samples will be denoted with the suffix ".5" after the depth in inches (e.g., DK-1011:12.5 would be a duplicate of the bottom of excavation sample collected at grid node 1011 at a depth of 12 inches).

PROJECT	10179		
PREPARED FOR	NORTHWEST PIPELINE GP		
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.98661N, 122.8362W		
SHEET 1 of 1	DRAWN BY TLJ	REVIEWED BY WAH	DATE 12-2011

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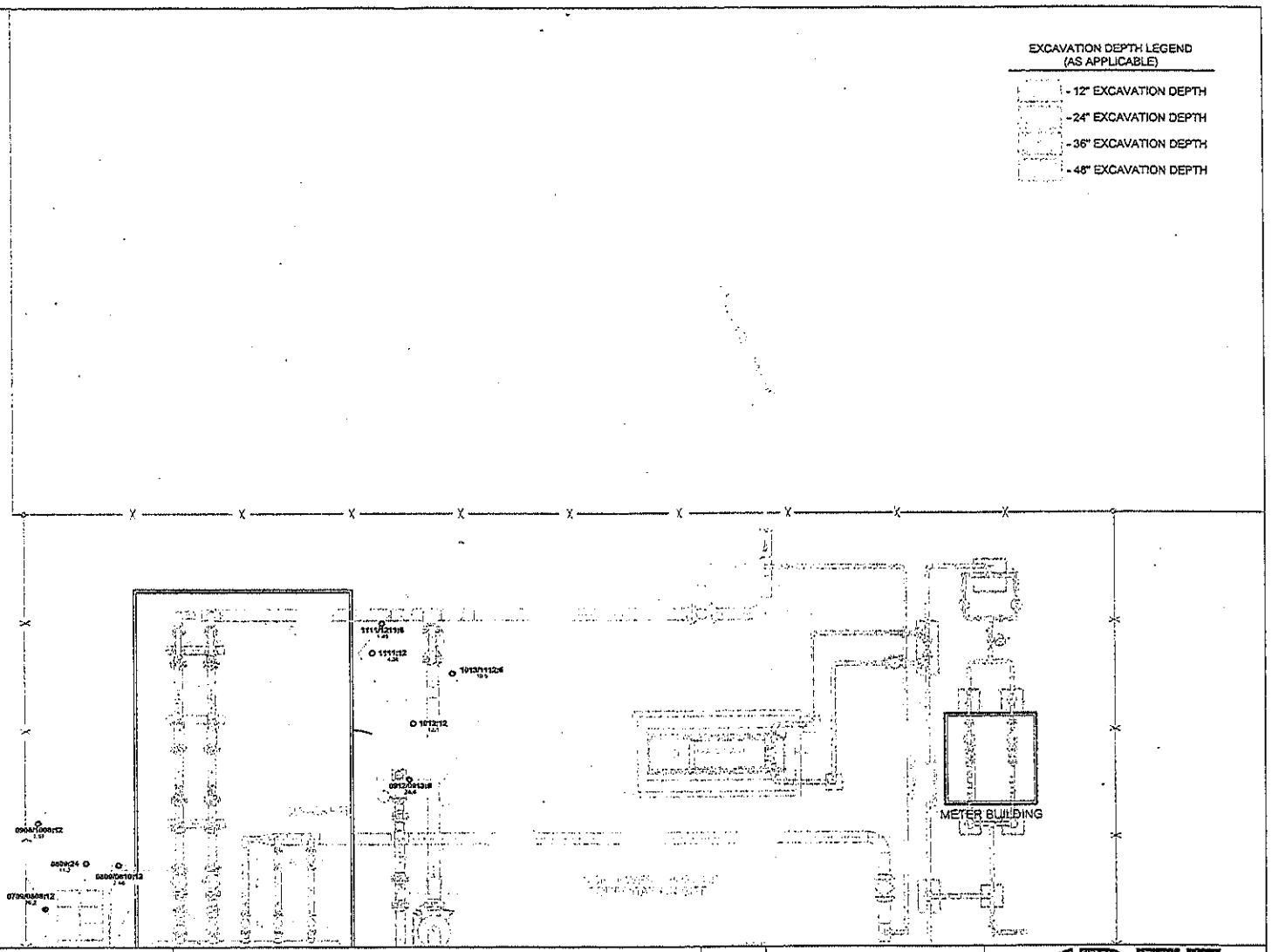
FIGURE DKMS-6
CORRECTIVE ACTION PLAN-ARSENIC
DEER ISLAND/KALAMA #2 METER STATION



REFERENCES: DWG NO. PM5-DER-1 PLOT PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-2 PIPING PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-0002-PLOT PLAN (AS-BUILT 11-04-87)

KEY:

PLANT NORTH
TRUE NORTH

0 2.5 5 10
SCALE: 1"=10'

● - PERFORMANCE SAMPLE LOCATION

GREEN - Hg SAMPLE RESULT <= CLEANUP LEVEL

RED - Hg SAMPLE RESULT > CLEANUP LEVEL

[ ] - INITIAL REMEDIAL EXCAVATION EXTENT (DEPTH NOTED)

CLEANUP LEVEL
As - 16 mg/kg

PERFORMANCE SAMPLE NAMING CONVENTION:
Performance sample IDs have the prefix "DK-" AND a suffix of a colon with the sample depth indicated in inches (e.g., DK-0910/1009:12).

Field duplicate samples results are denoted with a "(D)".

PROJECT	10179		
PREPARED FOR	NORTHWEST PIPELINE GP		
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.98961N, 122.8962W		
SHEET 1 of 1	DRAWN BY TLJ	REVIEWED BY WAH	DATE 12-2011

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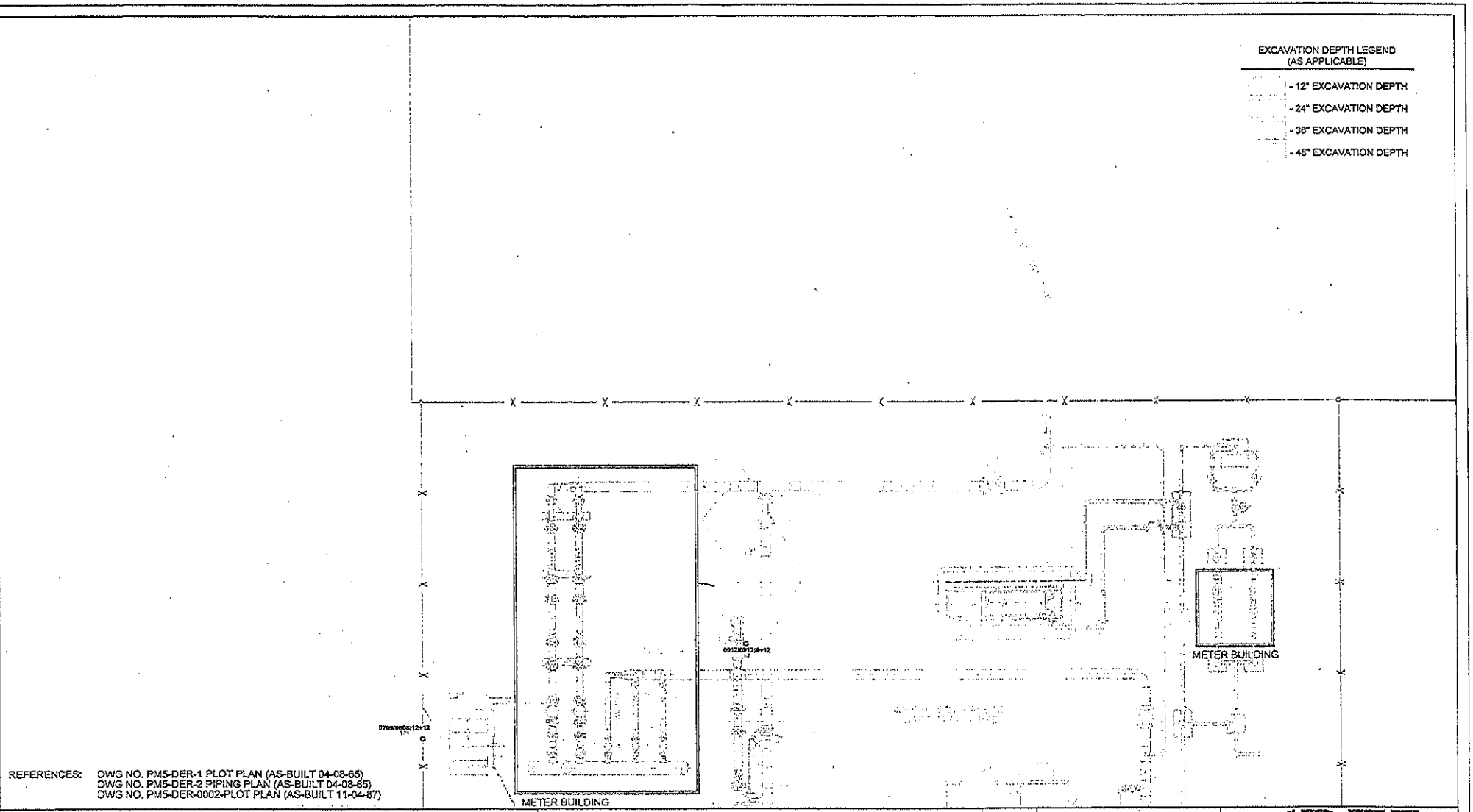
FIGURE DKMS-7
INITIAL LIMITS OF REMEDIAL EXCAVATION
ARSENIC
DEER ISLAND/KALAMA #2 METER STATION



REFERENCES: DWG NO. PM5-DER-1 PLOT PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-2 PIPING PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-0002-PLOT PLAN (AS-BUILT 11-04-87)

KEY:

- PERFORMANCE SAMPLE LOCATION
GREEN - Hg SAMPLE RESULT <= CLEANUP LEVEL
- REMEDIAL EXCAVATION EXTENT (DEPTH NOTED) - RE-DIG 1
- REMEDIAL EXCAVATION EXTENT (DEPTH NOTED) - PREVIOUS PHASE

SCALE: 1"=10'

CLEANUP LEVEL
As - 16 mg/kg

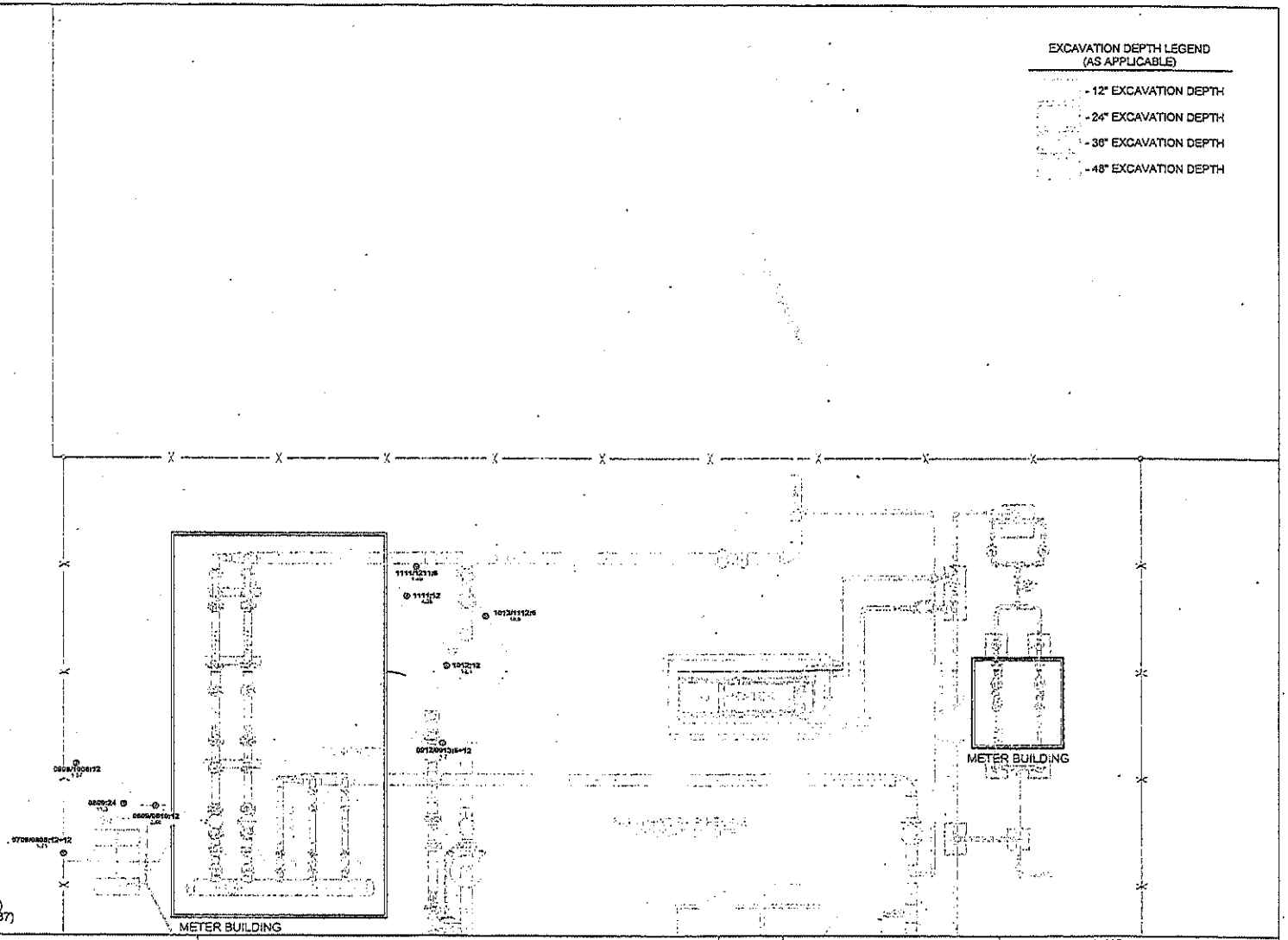
PERFORMANCE SAMPLE NAMING CONVENTION:
Performance sample IDs have the prefix "DK-" AND a suffix of a colon with the sample depth indicated in inches (e.g., DK-0910/1009:12).

Field duplicate samples results are denoted with a "(D)".

PROJECT	10179		
PREPARED FOR	NORTHWEST PIPELINE GP		
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.98961N, 122.8362W		
SHEET 1 of 1	DRAWN BY TLJ	REVIEWED BY WAH	DATE 12-2011

EPFI

FIGURE DKMS-7A
LIMITS OF REMEDIAL EXCAVATION
RE-DIG 1 - ARSENIC
DEER ISLAND/KALAMA #2 METER STATION



REFERENCES: DWG NO. PM5-DER-1 PLOT PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-2 PIPING PLAN (AS-BUILT 04-08-65)
DWG NO. PM5-DER-0002-PLOT PLAN (AS-BUILT 11-04-87)

KEY:

- PERFORMANCE SAMPLE LOCATION
GREEN - Hg SAMPLE RESULT <= CLEANUP LEVEL
- REMEDIAL EXCAVATION EXTENT (DEPTH NOTED) - FINAL

SCALE: 1"=10'

CLEANUP LEVEL
As - 16 mg/kg

PERFORMANCE SAMPLE NAMING CONVENTION:

Performance sample IDs have the prefix "DK-" AND a suffix of a colon with the sample depth indicated in inches (e.g., DK-0910/1009:12).

Field duplicate samples results are denoted with a "(D)".

PROJECT	10179			
PREPARED FOR	NORTHWEST PIPELINE GP			
LOCATION	ELEVATOR ROAD KALAMA, WASHINGTON 45.98831N, 122.839ZW			
SHEET 1 of 1	DRAWN BY TLJ	REVIEWED BY VAH	DATE 12-2011	

PEI

FIGURE DKMS-8
FINAL LIMITS OF REMEDIAL EXCAVATION
ARSENIC
DEER ISLAND/KALAMA #2 METER STATION

Table DKMS-3

Perfromance Sample Analytical Results - Mercury

Deer Island/Kalama #2 Meter Station

VCP Project No.:SW1201

Sample Designation	Depth (inches)	Date Collected	Sample Type			Final Performance Sample	Total Mercury Concentration (mg/kg)
			Sidewall	Bottom	Duplicate		
DK-0809/0810:6	6	12/2/09	X			X	0.32
DK-0908/1008:18	18	12/3/09	X			X	*< 0.021*
DK-0908/1008:6	6	12/2/09	X			X	*< 0.021*
DK-0908/1008:6.5	6	12/2/09	X		X	X	0.024
DK-0909:12	12	12/2/09		X		X	0.037
DK-1108:12	12	12/3/09		X		X	0.043
DK-1207/1307:18	18	12/3/09	X			X	*< 0.021*
DK-1207:12	12	12/3/09		X		X	0.022
DK-1208:12	12	12/3/09		X		X	0.15
DK-1209:12	12	12/3/09		X		X	1.7
DK-1306:24	24	12/3/09		X		X	*< 0.021*
DK-1307:12	12	12/3/09		X		X	0.24
DK-1307:12.5	12	12/3/09		X	X	X	0.048
DK-1308:12	12	12/3/09		X		X	0.042
DKSS-0711/0712:6	6	12/4/09	X			Excavated	2.9
DKSS-0711/0712E:6	6	12/8/09	X			X	0.77
DKSS-0711/0810:6	6	12/4/09	X			X	0.45
DKSS-0712/0812:6	6	12/4/09	X			X	0.53
DKSS-0712/0812:6.5	6	12/4/09	X		X	X	0.83
DKSS-0810/0811:18	18	12/4/09	X			X	0.67
DKSS-0811:12	12	12/4/09		X		X	0.046
DKSS-0910:24	24	12/4/09		X		X	0.064
DKSS-0911:24	24	12/5/09		X		X	1.1
DKSS-0912/1012:6	12	12/5/09	X			X	0.33
DKSS-1009:24	23	12/4/09		X		X	0.048
DKSS-1010:24	23	12/5/09		X		Excavated	120
DKSS-1010:36	36	12/8/09		X		X	*<0.2*
DKSS-1010E:2	2	12/8/09		X		X	0.64
DKSS-1010N:2	2	12/8/09		X		X	*<0.2*
DKSS-1010S:2	2	12/8/09		X		X	*<0.2*
DKSS-1010W:2	2	12/8/09		X		X	*<0.2*
DKSS-1011:24	24	12/5/09		X		X	0.30
MTCA Method A Soil Cleanup Level for Unrestricted Land Uses							**2.0**

Note: ".5" denotes field duplicate sample.

Table DKMS-3 (cont.)

Perfromance Sample Analytical Results - Mercury

Deer Island/Kalama #2 Meter Station

VCP Project No.:SW1201

Sample Designation	Depth (inches)	Date Collected	Sample Type			Final Performance Sample	Total Mercury Concentration (mg/kg)
			Sidewall	Bottom	Duplicate		
DKSS-1019/1119:6	6	12/5/09	X			X	<0.2
DKSS-1020/1119:18	18	12/5/09	X			X	<0.2
DKSS-1020:12	12	12/5/09		X		X	<0.2
DKSS-1021/1121:12	12	12/5/09	X			X	<0.2
DKSS-1108/1109:18	18	12/4/09	X			X	0.038
DKSS-1109:12	12	12/4/09		X		X	0.17
DKSS-1110:24	24	12/5/09		X		X	<0.2
DKSS-1111/1211:12	12	12/8/09	X			X	<0.2
DKSS-1111/1211:12.5	12	12/8/09	X		X	X	<0.2
DKSS-1120:24	24	12/5/09		X		X	<0.2
DKSS-1210:24	24	12/8/09		X		X	<0.2
DKSS-1212/1312:12	12	12/8/09	X			X	0.24
DKSS-1219/1220:12	12	12/5/09	X			X	<0.2
DKSS-1308/1408:18	18	12/8/09	X			X	<0.2
DKSS-1309:24	24	12/8/09		X		Excavated	5.3
DKSS-1309:36	36	12/10/09		X		X	<0.2
DKSS-1310:24	24	12/8/09		X		Excavated	46
DKSS-1310:36	36	12/10/09		X		X	<0.2
DKSS-1311:24	24	12/10/09		X		X	<0.2
DKSS-1313/1314:6	6	12/8/09	X			X	<0.2
DKSS-1406/1407:6	6	12/10/09	X			X	<0.2
DKSS-1409:12	12	12/8/09		X		X	0.34
DKSS-1410/1510:12	12	12/10/09	X			X	<0.2
DKSS-1411:24	24	12/10/09		X		X	0.20
DKSS-1412:24	24	12/10/09		X		X	<0.2
DKSS-1413/1512:18	18	12/10/09	X			X	<0.2
DKSS-1413:12	12	12/8/09		X		X	<0.2
DKSS-1414/1514:6	6	12/10/09	X			X	<0.2
DKSS-1508/1509:6	6	12/8/09	X			X	<0.2
DKSS-1508/1509:6.5	6	12/8/09	X		X	X	<0.2
DKSS-1509/1608:6	6	12/10/09	X			X	<0.2
DKSS-1513:12	12	12/10/09		X		X	<0.2
MTCA Method A Soil Cleanup Level for Unrestricted Land Uses							2.0

Note: ".5" denotes field duplicate sample.

Table DKMS-3 (cont.)

Perfromance Sample Analytical Results - Mercury

Deer Island/Kalama #2 Meter Station

VCP Project No.:SW1201

Sample Designation	Depth (inches)	Date Collected	Sample Type			Final Performance Sample	Total Mercury Concentration (mg/kg)
			Sidewall	Bottom	Duplicate		
DKSS-1608/1707:12	12	12/10/09	X			X	<0.2
DKSS-1609/1709:18	18	12/10/09	X			X	<0.2
DKSS-1609:12	12	12/10/09		X		X	<0.2
DKSS-1610:12	12	12/10/09		X		X	<0.2
DKSS-1612:12	12	12/10/09		X		X	0.24
DKSS-1708:24	24	12/10/09		X		X	0.29
DKSS-1710/1809:6	6	12/10/09	X			X	<0.2
DKSS-1711:12	12	12/10/09		X		X	<0.2
DKSS-1712/1811:6	6	12/10/09	X			X	<0.2
DKSS-1712/1811:6.5	6	12/10/09	X		X	X	0.92
DKSS-1807/1808:12	12	12/10/09	X			X	<0.2
DKSS-1810:12	12	12/10/09		X		X	<0.2
DKSS-1908/2008:6	6	12/10/09	X			X	<0.2
DKSS-1908/2008:6.5	6	12/10/09	X		X	X	<0.2
DKSS-1909:12	12	12/10/09		X		X	<0.2
DKSS-1910/2009:6	6	12/10/09	X			X	<0.2
DKSS-ORM1/0921:6	6	12/5/09	X			X	<0.2
MTCA Method A Soil Cleanup Level for Unrestricted Land Uses							2.0

Note: ".5" denotes field duplicate sample.

Table DKMS-4

Perfromance Sample Analytical Results - Arsenic

Deer Island/Kalama #2 Meter Station

VCP Project No.:SW1201

Sample Designation	Depth (inches)	Date Collected	Sample Type			Final Performance Sample	Total Arsenic Concentration (mg/kg)
			Sidewall	Bottom	Duplicate		
DK-0809:24	24	6/18/12		X		X	11.3
DK-0709/0808:12	12	6/18/12	X			Excavated	26.2
DK-0709/0808:12+12	12	6/19/12	X			X	1.71
DK-0908/1008:12	12	6/18/12	X			X	1.57
DK-0809/0810:12	12	6/18/12	X			X	2.68
DK-1012:12	12	6/18/12		X		X	12.1
DK-1111:12	12	6/18/12		X		X	4.38
DK-0912/0913:6	6	6/18/12	X			Excavated	24.6
DK-0912/0913:6+12	6	6/19/12	X			X	1.7
DK-1013/1112:6	6	6/18/12	X			X	10.5
DK-1111/1211:6	6	6/18/12	X			X	1.49
CUL Based on TEE							16.0