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

July 11, 2014

Mr. Earle David Lees
Skokomish Tribal Attorney
N. 80 Tribal Center Road
Skokomish Nation, WA 98584

Re: Opinion on Proposed Cleanup of the following Site:

- **Site Name:** WSDOT Maintenance Facility Skokomish
- **Site Address:** 19811 N US Hwy 101
- **Facility/Site No.:** 14549
- **Cleanup Site ID No.:** 12397
- **VCP Project No.:** SW1405

Dear Mr. Lees:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of the former WSDOT Maintenance Facility Skokomish 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

Upon completion of the proposed cleanup, will further remedial action likely be necessary to clean up contamination at the Site?

NO. Ecology has determined that, upon completion of your proposed cleanup, no further remedial action will likely be 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 release:

- Petroleum hydrocarbons and related constituents, polycyclic aromatic hydrocarbons (PAHs), and metals into the Soil.

Enclosure A includes diagrams 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. Phase II Environmental Site Assessment, WSDOT Maintenance Facility, Highway 101 North, MP 3362, dated September 30, 2013 by ESA Associates, Inc. (ESA).

2. Remediation and Site Characterization, WSDOT Maintenance Facility, Highway 101 North, MP 3362, dated December 13, 2013 by ESA.

3. Groundwater and Soil Sampling Event, WSDOT Maintenance Facility, Highway 101 North, MP 3362, dated May 16, 2014 by ESA.

4. Proposal to Conduct Site Remediation, For the WSDOT Property, Highway 101 North, dated April 22, 2014 by ESA.

5. Proposal to Conduct Site Remediation, Triangle Area, For the WSDOT Property, Highway 101 North, dated April 22, 2014 by ESA.

6. Email correspondence between Scott Rose (Ecology) and Kristen Burgess (ESA), RE: Initial Comments/Notes on Skokomish Proposals, dated July 3, 2014.

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, upon completion of your proposed cleanup, **no further remedial action** will likely be 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 was reportedly used as a harvested forest from the early 1900s to the early 1950s. Sometime after 1952, the 14-acre Site was used by the Washington State Department of Transportation (WSDOT) to store road maintenance equipment and road debris until 2003 when the Skokomish Indian Nation acquired the property. A maintenance building was located on Site until 2001. The Site was also used as a gravel pit from the late 1970s to 1999 when it was reportedly filled in by WSDOT with landslide fill material.

Investigations conducted at the Site by ESA have identified areas of concern, such as the former maintenance building and an associated catchbasin and drywell, a former computer storage shed, burn piles, the former quarry area, a boat storage area, former underground storage tanks (USTs), and the triangle area, a fill area noted in the western portion of the Site *(see attached Figures 2a, 2b, and 2c)*.

Between August 2013 and April 2014, ESA collected numerous soil and groundwater samples from test pit and soil boring explorations throughout the areas of concern at the Site. The samples were analyzed for one or more of the following analyses: gasoline-, diesel-, and heavy oil-range petroleum hydrocarbons (TPH-G, TPH-D, and TPH-O), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) (including PAHs), pesticides, polychlorinated biphenyls (PCBs), and priority pollutant metals.

Analytical results indicated that soil was impacted with TPH-D, TPH-O, VOCs, metals, and PAHs above MTCA cleanup levels at the following locations:

- **TP-13** (TPH-O at 38,000 milligrams per kilogram [mg/kg] at the surface, and TPH-D and TPH-O at 3,360 and 10,200 mg/kg, respectively, at 3 feet below ground surface [bgs]).
- **TP-19** (carcinogenic PAHs [cPAHs] at 0.334 mg/kg at 6 inches bgs);
- **TP-7** (benzene at 0.154 mg/kg at the surface).
- **MF-1** (at 2 feet bgs: TPH-D and TPH-O at 5,580 and 38,800 mg/kg, respectively; n-nitrosodi-n-propylamine at 8,100 mg/kg and 4-chloroaniline at 12,800 mg/kg; cadmium at 5.88 mg/kg, and lead at 1,160 mg/kg).
- **TP-27** (cPAHs at 1.276 mg/kg at 4 feet bgs).
- **B-5** (TPH-O at 4,380 mg/kg and cPAHs at 0.187 mg/kg at 9 feet bgs) *(see attached Figure 2)*.

The respective MTCA Method A or B cleanup levels for these contaminants are as follows: TPH-D and TPH-O (2,000 mg/kg); cPAHs (0.1 mg/kg); benzene (0.03 mg/kg); n-nitrosodi-n-propylamine (0.143 mg/kg); 4-chloroaniline (320 mg/kg); cadmium (2 mg/kg); and lead (250 mg/kg).

Groundwater was collected in August 2013 from four of five existing monitoring wells at the Site (the fifth well could not be located). Analytical results indicated the presence of total arsenic, beryllium, and lead in groundwater above MTCA cleanup levels. However, the samples were subsequently filtered at the laboratory and the dissolved results were either non-detect or below MTCA cleanup levels suggesting a high suspended solids content in the original samples *(see attached Tables 6 and 7)*.

Additional groundwater data was collected in April 2014 from temporary wells in borings B-1 and B-2 in the vicinity of the former catchbasin and drywell. Again, the unfiltered results showed arsenic and lead above MTCA cleanup levels in one of the samples; however, the dissolved results were non-detect *(see attached Table 2)*.

In November 2013, ESA remediated a couple of the areas of concern on Site as follows:

- Inside and outside areas of the storage shed where petroleum and PAH impacts were identified (TP-13 and TP-19) were excavated. A total of 84 cubic yards of soil were removed and disposed at Roosevelt Landfill, Roosevelt, Washington. Confirmation samples collected from the sidewalls and base of the excavations were either non-detect or below MTCA cleanup levels.

- Solid waste within the burn piles where benzene was identified (TP-7) was removed from the Site. About 120 tons of debris was transported off Site and disposed at Roosevelt Landfill. Confirmation soil samples collected from beneath the burn piles once they were removed were either non-detect or below MTCA cleanup levels.

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.

MTCA Method A and B cleanup levels for soil and groundwater for unrestricted land uses are being used at the Site.

Standard points of compliance are being used for the Site. The point of compliance for protection of groundwater shall be established in the soils throughout 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 shall be established in the soils throughout the Site from the ground surface to 15 feet bgs. In addition, the point of compliance for the groundwater shall be established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest most depth that could potentially be affected by the Site.

3. Selection of cleanup action.

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

On behalf of the Skokomish Nation, ESA submitted two proposals for different portions of the Site (the Triangle Area, and everywhere else). Ecology has reviewed these proposals, along with what's been done to date, and has the following comments:

1. Dioxin and Furan Sampling - Confirmation soil samples collected from beneath the former burn piles had not been analyzed for dioxins/furans. ESA has proposed to sample three of the former burn piles in the areas of TP-1, TP-2, and TP-7 for dioxins/furans *(see attached Figure 2a)*. ESA has indicated that remediation plans for these areas will be determined upon receipt of the data; however, cleanup would likely be via excavation as has been done elsewhere on Site. This proposal is likely to meet the substantive requirements of MTCA.

2. Northeast Quadrant Former Quarry – ESA plans to excavate PAH-impacted soil in the vicinity of TP-27, followed by confirmation soil sampling *(see attached Figure 2a)*. This proposal is likely to meet the substantive requirements of MTCA.

3. Southwest Quadrant Former Quarry – ESA plans to excavate petroleum- and PAH-impacted soil in the vicinity of B-5, followed by confirmation soil sampling *(see attached Figure 2a)*. This proposal is likely to meet the substantive requirements of MTCA.

4. Southeast Quadrant Former Drywell – ESA plans to excavate soil in the vicinity of the former drywell and boring B-2, followed by confirmation soil sampling *(see attached Figure 2a)*. No contaminants above MTCA cleanup levels were detected in B-2, and as such, MTCA does not require this area to be remediated. However, according to ESA, B-2 was not advanced in the optimum location due to the presence of a 6-foot soil berm so further characterization is proposed via excavation. If impacted soil above MTCA cleanup levels is encountered, it will be excavated and disposed off Site, which is likely to meet the substantive requirements of MTCA. Otherwise, the soil will remain on Site.

5. Southeast Quadrant Former Catchbasin – ESA plans to excavate petroleum-, VOC-, and metals-impacted soil in the vicinity of the former catchbasin and sample MF-1, followed by confirmation soil sampling *(see attached Figure 2a)*. This proposal is likely to meet the substantive requirements of MTCA.

6. Triangle Area – ESA plans to excavate soil within the Triangle Area in the vicinity of TP-10, TP-11, TP-20, TP-21, TP-22, TP-23, and TP-24, followed by confirmation soil sampling *(see attached Figure 2b)*. Historically, petroleum hydrocarbons, VOCs, and metals have been detected in this area but at concentrations below

MTCA cleanup levels. Based on this data, MTCA does not require this area to be remediated. However, according to ESA, a steel drum and/or bucket filled with "congealed petroleum product" was identified in the vicinity of TP-11 during a geotechnical investigation by HWA GeoSciences, Inc. on April 25, 2013. ESA has yet to identify the location of this drum and further characterization is proposed via excavation. If impacted soil above MTCA cleanup levels is encountered, it will be excavated and disposed off Site, which is likely to meet the substantive requirements of MTCA. Otherwise, according to MTCA, the soil may remain on Site.

As an alternative, Ecology recommends conducting a Geophysical Survey to identify any metallic anomalies within the Triangle Area, which might aid in focusing characterization efforts.

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 proposed will be substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. Opinion is limited to proposed cleanup.

This letter does not provide an opinion on whether further remedial action will actually be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the VCP.

4. 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).

Contact Information

Thank you for choosing to clean up the Site under the Voluntary Cleanup Program (VCP). As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

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, please contact me at (360) 407-6347 or via email at sros461@ecy.wa.gov.

Sincerely,

Scott Rose, L.G.
VCP Unit Supervisor
SWRO Toxics Cleanup Program

SIR/ksc:WSDOT Skokomish Proposed Site Cleanup Likely NFA

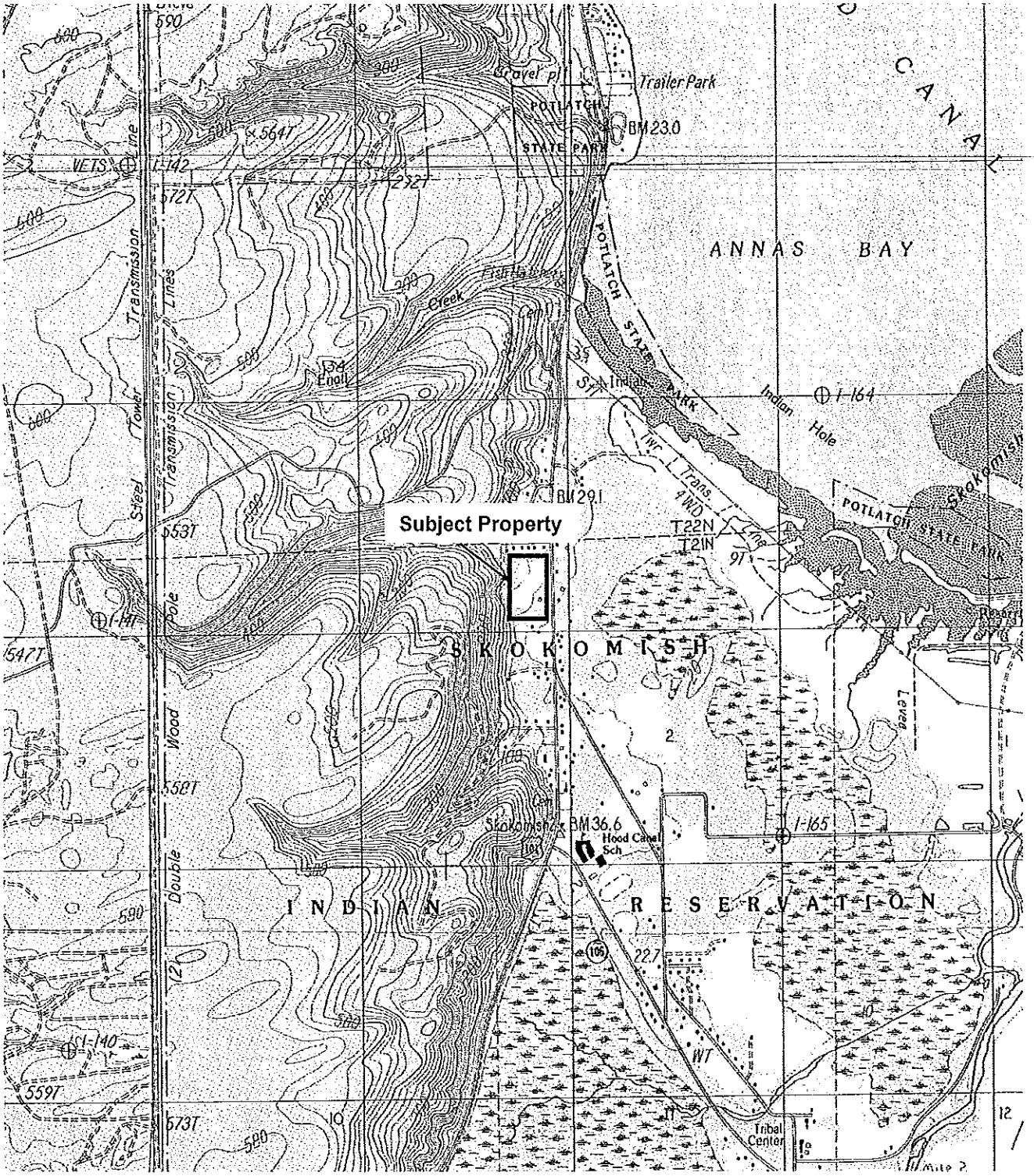
Enclosures: A – Diagrams of the Site

By certified mail: (7013 2630 0001 9408 9050)

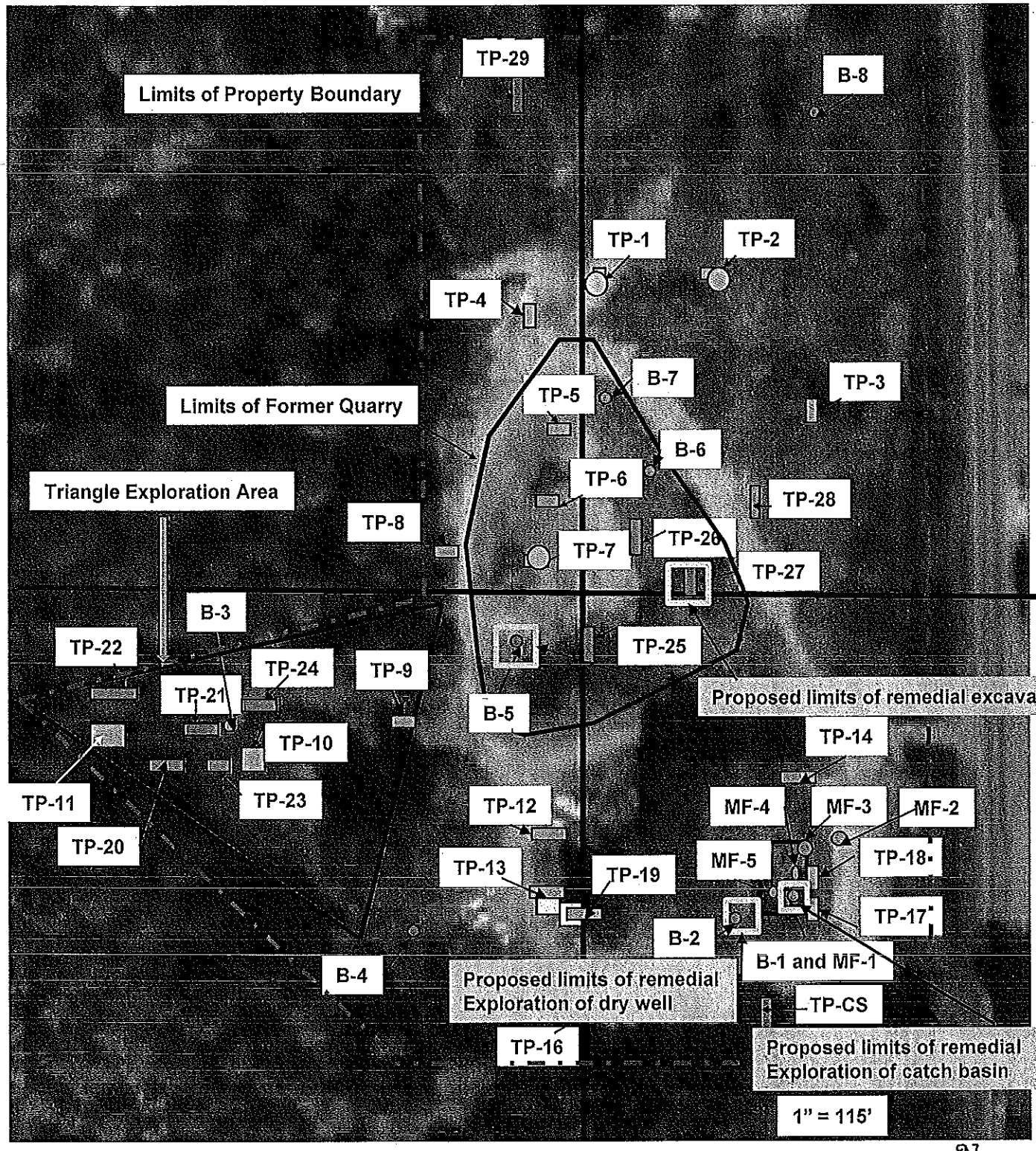
cc: Ms. Kristen Burgess – ESA Associates, Inc.
Mr. Norm Payton – WSDOT
Rebecca Lawson – Ecology
Dolores Mitchell – Ecology

Enclosure A

Diagrams of the Site



ESA Associates, Inc.	**Site Vicinity Map** *WSDOT Property* *Highway 101 North* *Mason County* *Skokomish Nation, Washington*	FIGURE 1
PROJECT NO. 711-004-07 May, 2014		



Test Pit Location from August 2013 Phase II ESA

Remedial Excavations November 2013

Proposed sampling point dioxins/furans

Test pit locations from November Characterization 2013

Boring Locations April 2014

Sampling Locations November 2013

N

ESA Associates, Inc.

PROJECT NO. 711-008-06 July, 2014

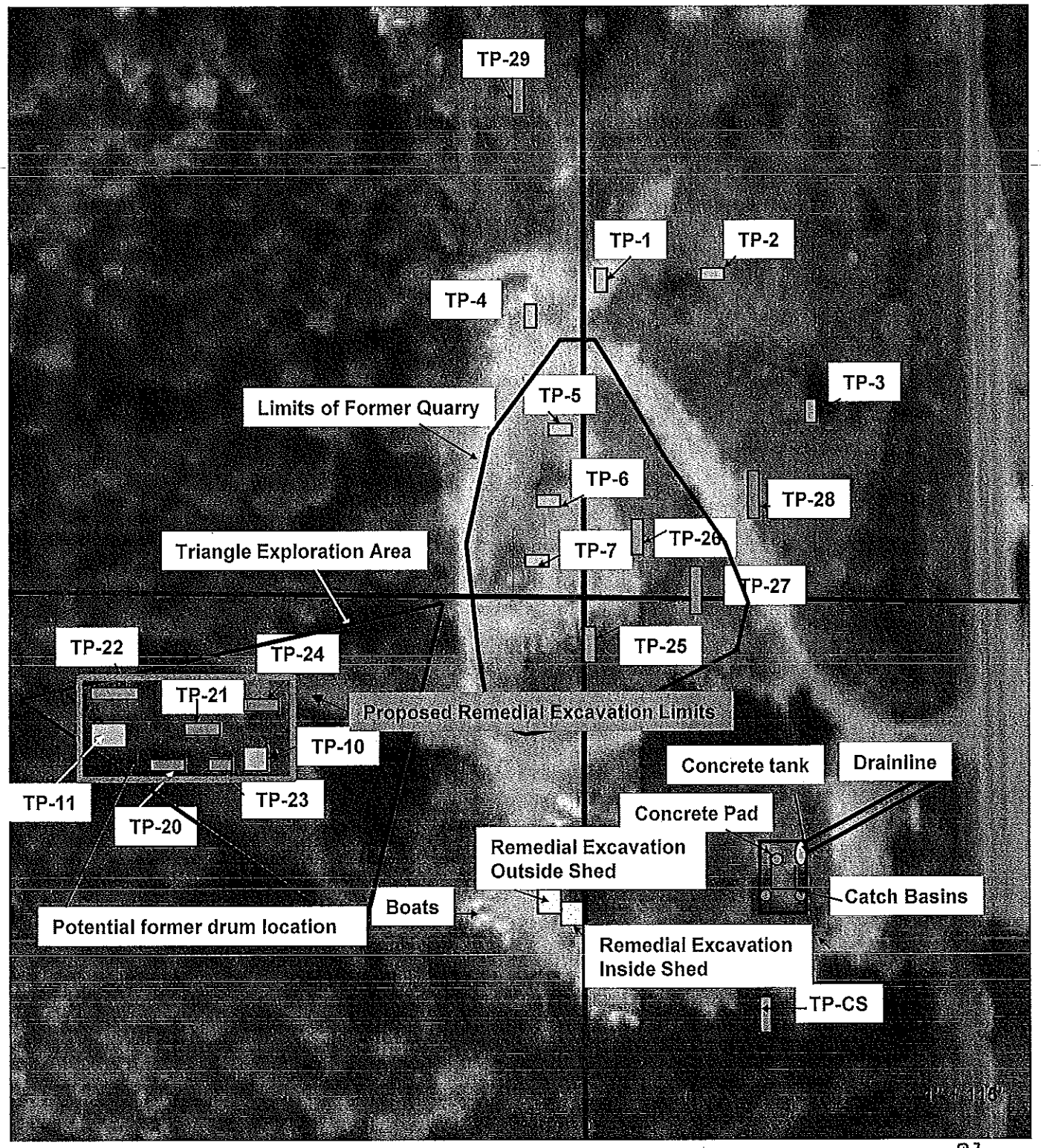
Test Pit/Remediation/Boring Locations

WSDOT Property

Skokomish Nation, Washington

FIGURE

2a



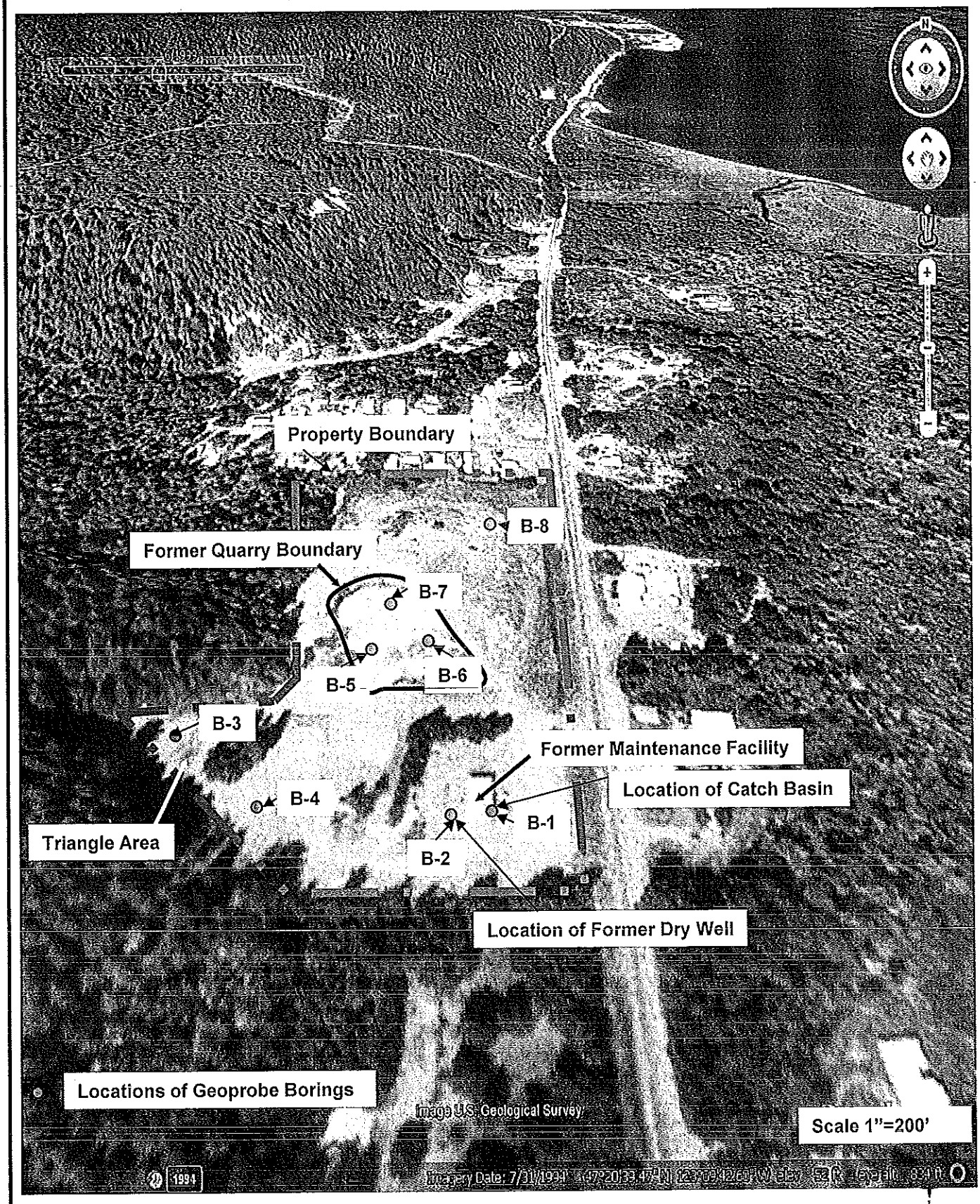
Test Pit Location from August Phase II ESA

Test pit locations from November Characterization

Remedial Excavations

N

ESA Associates, Inc.	**Test Pit/Remediation Locations** *WSDOT Property* *Highway 101 North* *Mason County* *Skokomish Nation, Washington*	FIGURE **2b**
PROJECT NO. 711-008-06 April, 2014		



ESA Associates, Inc.	**Boring Locations Map** *WSDOT Property* *Highway 101 North* *Mason County* *Skokomish Nation, Washington*	FIGURE **2c**
PROJECT NO. 711-004-07 May, 2014		

TABLE 2

Summary of Soil and Water Samples Priority Pollutant Metals Laboratory Analytical Results

WDOT Maintenance Facility Property: Skokomish, Washington

Sample ID	Sample Depth (FT)	Sb	As	Be	Cd	Cr	Cu	Pb	Ni	Ag	Se	Tl	Zn	Hg
B-1	18	ND	1.43	0.214	ND	32.1	44.4	1.6	30.3	ND	ND	ND	35.4	ND
B-2	18	ND	2.49	0.328	ND	52.7[1]	52.5	2.36	44.7	ND	ND	ND	50.1	ND
B-3	6	ND	2.12	0.321	ND	44.3	66.6	6.39	41.3	.0.11	ND	ND	53.5	ND
B-4	20	ND	1.56	0.193	ND	31.4	41.8	1.39	29.5	ND	ND	ND	37.5	ND
B-5-1	9	ND	2.28	0.234	ND	42.4	56.7	12.6	40.3	ND	ND	ND	59.3	ND
B-5-2	30	ND	1.53	0.184	ND	29.9	39.0	1.55	26.9	ND	ND	ND	33.3	ND
B-6	9	ND	2.08	0.285	ND	42.7	57.2	15.6	33.9	0.09	ND	ND	74.1	ND
B-7	15	ND	2.11	0.305	ND	43.0	63.2	3.15	37.2	0.11	ND	ND	51.2	ND
B-8	30	ND	1.25	ND	ND	21.8	30.6	1.11	22.4	ND	ND	ND	28.2	ND
W-1	18	ND	2.92	0.372	ND	38	71	2.67	24	ND	ND	ND	61.8	ND
W-2	18	ND	ND	0.394	ND	49[2]	30.4	1.48	256[2]	ND	ND	ND	20.2	ND
W-3	6	0.344	**10.3**[3]	0.664	0.788	33.5[3]	504	**25.1**[3]	53	0.45	ND	ND	132	ND
MTCA Cleanup Levels Soil (mg/kg)		32	20	160	2	19/ 2000	3200	250	1600	400	400	5.6	24000	2
MTCA Cleanup Levels Water (µg/L)		6.4	5	32	5	50	640	15	320	80	80	1.12	4800	2

Bold indicates concentrations exceeding MTCA cleanup levels.

[1]All soil samples were subsequently analyzed for hexavalent chromium. Hexavalent chromium was not detected above laboratory detection limits in all soils samples analyzed.

[2]Water sample W-2 was subsequently filtered in the laboratory and reanalyzed for chromium and nickel. Chromium was detected at 1.26 µg/L and Nickel was detected at 4.53 µg/L.

[3]Water sample W-3 was subsequently filtered in the laboratory and reanalyzed for Arsenic, Chromium, Copper, and Lead. Arsenic was non-detect, Chromium was 4.46 µg/L, Copper was 9.11µg/L, and lead was non-detect.

TABLE 6

Summary of Groundwater Samples Laboratory Analytical Results

WDOT Maintenance Facility Property

Skokomish, Washington

Sampled on August 29, 2013

Results Reported in µg/L

Sample ID	Depth to GW (FT)	Well Depth	GW Elevation	NWTPH-HCID/dext	VOCs EPA Method 8260	Pesticides EPA Method 8081	SVOCs EPA Method 8270	PCBs EPA Method 8082	Priority Pollutant Metals
SKOK-1	31.80	42.6	19.22	ND	ND	NA	ND	ND	Detected[1]
SKOK-2	19.11	32.6	13.73	ND	Detected[2]	NA	Detected[3]	ND	**Detected**[1]
SKOK-3	NA	42.0	NA	NA	NA	NA	NA	NA	NA
SKOK-4	34.20	48.0	13.87	ND	ND	ND	ND	ND	**Detected**[1]
SKOK-5	19.90	28.25	13.79	ND	ND	NA	ND	ND	**Detected**[1]

Bold indicates a concentration exceeding MTCA cleanup levels

ND Non-Detect

NA Not Analyzed

[1]Detected indicates that metals were detected. See Table 4 for results.

[2]VOCs were detected in SKOK-2 as follows: Bis (2 ethylhexyl)phthalate (1.58 µg/L)

[3]SVOCs were detected in SKOK-2 as follows: Toluene (11.4 µg/L)

TABLE 7

Summary of Groundwater Samples Laboratory Analytical Results

WDOT Maintenance Facility Property: Skokomish, Washington

Sampled on August 27 and 28, 2013

Results reported in µg/L

Sample ID	Sample Depth (FT)	Sb	As	Be	Cd	Cr	Cu	Pb	Ni	Se	Ag	Tl	Zn	Hg
SKOK-1	31.80	0.336	3.04	**0.563**	0.201	47.2	43.0	8.59	76.0	ND	ND	ND	65.5	ND
SKOK-2	19.11	0.600	**18.7**	**2.51**	ND	**241**	343	**22.8**	229	ND	0.448	0.270	268	0.172
SKOK-3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SKOK-4	34.20	0.392	**13.7**	**1.85**	0.544	**166**	345	**19.5**	220	ND	0.430	ND	240	0.118
SKOK-5	19.90	0.312	**16.4**	**2.86**	0.482	**197**	320	**16.4**	189	ND	0.355	0.207	230	0.577
MTCA Cleanup Levels			5.0	0.02	5.0	50		15	592		80		3,200	2.0

ND Non-Detect

NA Not Analyzed

Bold indicates metal concentrations that exceeded the corresponding MTCA cleanup levels for the undissolved samples.

All detections above MTCA cleanup levels were filtered in the laboratory and reanalyzed. The results of the dissolved analysis for metals indicated that arsenic, beryllium, chromium, and lead were either non-detect or detected well below the MTCA Method A or B cleanup levels.