APPENDIX A
NOTICE OF INTENT PROOF OF PUBLICATION

Kitsap Sun
PART OF THE USA TODAY NETWORK

PROOF OF PUBLICATION

BATTELLE
505 KING AVENUE
COLUMBUS, OH 43201

STATE OF WISCONSIN, COUNTY OF BROWN:

I, being first duly sworn on oath, deposes and says: That I am now, and at all times embraced in the publication herein mentioned was the principal clerk of the printers and publishers of KITSAP SUN; that said newspaper has been approved as a legal newspaper by the order of the Superior Court of the County of Kitsap, in which County it is published and is now and has been for more than 6 months prior to the date of the publication hereinafter referred to, published in the English language continually as a daily newspaper in Bremerton, Kitsap County, Washington, a weekly newspaper in Kitsap County, Washington and is now and during all of the said time, was printed in an office maintained in the aforesaid place of publication of said newspaper; that the following is a true text of an advertisement as it was published in regular issues (and not in supplement form) of said newspaper on the following date(s), to wit: And on

09/06/2019, 09/07/2019, 09/08/2019

such newspaper was regularly distributed to its subscribers during all of said period

Subscribed and sworn to before on October 3, 2019

Legal Clerk

Notary Public, State of Wisconsin, County of Brown

8-25-23
My commission expires

Publication Cost: $1,420.80
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SHELLY HORA
Notary Public
State of Wisconsin

Naval Base Kitsap Keyport
Invites You to Participate in the
Fifth 5-Year Review of Cleanup Actions
July 2014 to July 2019

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Keyport, Washington

Lead Agency Conducting the Review:
United States Navy

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E-mail: james.k.johnson3@navy.mil

Anticipated Date of 5-Year Review Completion: December 2020

BR-GCI0260626-01

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Travis Baker
Guest columnist

Are right-turn arrows warranted on Viking Way intersections?

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North Kitsap Herald

Affidavit of Publication

State of Washington }
County of Kitsap } ss

Leanna Hartell being first duly sworn, upon oath deposes and says: that he/she is the legal representative of the North Kitsap Herald a weekly newspaper. The said newspaper is a legal newspaper by order of the superior court in the county in which it is published and is now and has been for more than six months prior to the date of the first publication of the Notice hereinafter referred to, published in the English language continually as a weekly newspaper in Kitsap County, Washington and is and always has been printed in whole or part in the North Kitsap Herald and is of general circulation in said County, and is a legal newspaper, in accordance with the Chapter 99 of the Laws of 1921, as amended by Chapter 213, Laws of 1941, and approved as a legal newspaper by order of the Superior Court of Kitsap County, State of Washington, by order dated June 16, 1941, and that the annexed is a true copy of NKH872019 5-YEAR REVIEW as it was published in the regular and entire issue of said paper and not as a supplement form thereof for a period of 3 issue(s), such publication commencing on 09/06/2019 and ending on 09/20/2019 and that said newspaper was regularly distributed to its subscribers during all of said period.

PAID IN FULL

The amount of the fee for such publication is $702.03.

Leanna Hartell

Subscribed and sworn before me on this 20th day of September, 2019.

Diana L Beaver

Notary Public in and for the State of Washington.

DIANA L BEAVER
NOTARY PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES 4-29-21

Battelle |
HOLLY GOLDEN

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Salamanders: tiny creatures with big impact

While small, forest salamanders play a big role in balancing natural CO2 emissions. **Photos courtesy Nancy Sefton**

KITSAP, NATURALLY

By NANCY SEFTON

Have you ever walked through the woods and wondered who's peering at you through the greenery? A black bear maybe? A wildcat? Strangely, one of the most influential "predators" here is probably hiding under a rock! In a lifetime of hiking, you may never glimpse these tiny "heroes," even though the forest floor literally teems with them.

They're called woodland salamanders. These four-legged, flat-headed, long-toed, long-tailed, bug-eyed, slippery amphibians (relatives of frogs) are at home in both land and water. And believe it or not, these tiny critters (from 3 to 7 inches long) are crucial to the flow of nutrients through our forests, and to the fight against climate change.

Salamanders? Who'd have thought?!

Salamanders breed in ponds and streams, dining on aquatic bugs, until they develop lungs that replace the external gills. Then, taking up life on land, they wander widely until they return to the same breeding pond (some species guided by earth's magnetic field).

So how do these shy creatures help us fight global warming? Wrap your mind around this:Fallen leaves accumulate on the forest floor where they're ripped into bits and gobbled by hoards of insects.

In one day, a single salamander may eat 20 ants, two flies or beetle larvae, one adult beetle and a springtail.

The resulting leaf litter contains 50% carbon. Excess carbon dioxide (CO2), released into the atmosphere, is gradually warming the Earth.

Enter the salamanders! It so happens that they feast on leaf-shredding insects. Voila: fewer bugs and more undamaged leaves.

Now, the important step: if those leaves are left intact, they pile up in layers, holding onto the carbon until it's captured by the soil, and locked up underground.

In one day, a single salamander may eat 20 ants, two flies or beetle larvae, one adult beetle and a springtail. Multiply that by the estimated density of about 750,000 salamanders per square mile of forest, and you have an amazing system that begins with Mother Nature's control over insects with an appetite for dead leaves, and ends with less CO2 in our atmosphere. A little mind-boggling, but it works.

The proof lies with a recent test where several enclosures (like raised-bed gardens) were created in a northwest forest; screening confined salamanders to certain enclosures, while leaf-gobbling insects had free passage throughout. The results? In enclosures with no salamanders, more leaves were shredded by the bugs, releasing more carbon into the atmosphere. Scientists calculate that on one acre of forest, salamanders send about 180 pounds of carbon into the soil, rather than into the air. It's Nature's fine-tuned system, unless (you guessed it!) humans interfere. Nowadays, logging practices and new wildlife diseases create problems. Amphibians, historically immune to fungal infections, are starting to fall prey to these, thanks perhaps to chemical contamination from human activity. Pavement, introduced into forests, contains chemicals harmful to salamanders and other amphibians, polluting ponds and wetlands.

Long ago, TV newscaster Tom Brokaw reported that amphibian numbers were dropping everywhere. He blamed natural changes beyond human control. Today, "we've met the enemy, and it is us." Nevertheless, small but helpful steps are being taken. Scientists are dealing with the spread of fungal diseases, and loggers are starting to abandon those sobering clear-cuts, leaving some older trees standing to store excess carbon and create havens for wildlife.

The gradual loss of our amphibians is just another shot across the bow. Salamanders are one small piece of the puzzle, but their plight reflects our own need to solve a problem we alone created.

Naval Base Kitsap Keyport
Invites You to Participate in the
Fifth 5-Year Review of Cleanup Actions
July 2014 to July 2019

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Keyport, Washington

Lead Agency Conducting the Review:
United States Navy

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Anticipated Date of 5-Year Review Completion: December 2020

BR-GC0260626-01

Recalled generator likely the cause of Kingston garage fire

An investigator with the Kitsap County Fire Marshal's Office has determined that a recalled generator was likely the cause of a Sept. 5 blaze at an off-duty firefighter's home near Kingston.

The firefighter's garage was gutted as a result of the blaze and most of its contents were destroyed. According to a release from North Kitsap Fire & Rescue, the damage was limited by the homeowner's quick actions and the fire department's rapid response.

Although the flames didn't spread beyond the detached structure to the nearby home and no one was injured in the incident, officials hope to prevent future incidents by calling attention to generator safety tips.

North Kitsap Fire & Rescue (NKF&R) and Poulsbo Fire Department (PFD) crews were alerted to the fire at 7:55 p.m. Sept. 5, after the off-duty NKF&R lieutenant saw flames coming from his home's detached garage. He immediately asked his wife to call 911 and evacuate the home's other occupants while he attempted to attack the growing fire with extinguishers.

While the lieutenant's efforts slowed the fire's growth, they weren't sufficient to stop it so when the crews first arrived from NKF&R's headquarters, flames had engulfed the far half of the two-car, single-story structure which is situated about ten feet from the residence.

Firefighters, using large volumes of water, were able to quickly squelch the flames to prevent further damage or spread of the fire.

Evidence at the scene along with witness statements points to the fire's origin being in the location of the generator, which had been running due to a power outage Thursday night.

The particular model of generator in question, a Champion 8250 Portable Generator, model 41332, responders say, was under recall as a potential fire hazard.

According to the United States Product Safety Commission, the generator was recalled due to fuel leaks from the generator's carburetor.

Lightning thought to have sparked Sunday brush fire in Kingston

About 1,200 square feet of vegetation was charred in a Sunday brush fire that firefighters believe started with a lightning strike to a large maple tree in Kingston late Saturday night.

North Kitsap Fire & Rescue (NKF&R) crews were called to a Barnswallow Way address off of Norman Road near Kingston just after 2:30 p.m. after the property owners discovered the slow-moving fire.

Upon arrival, firefighters reported active fire with flames reaching two-to-four feet in height, burning out from the base of a maple tree. The tree was split and its bark was charred, suggesting that it was struck during the previous evening's lightning storm.

A large hemlock, that appeared to have fallen long ago, was also burning, according to a release from NKF&R.

Although crews were able to quickly stop the fire's progress and no structures were threatened by the flames, responders say the fire did pose a challenge as they attempted to extinguish the blaze.

The closest vehicle access was 400 feet away and water for the suppression effort had to be provided by a tender truck.

Extinguishing hot spots deep in the forest floor required six firefighters and approximately 6,000 gallons of water and took two hours to contain. Crews returned to the scene periodically during the rest of the day to ensure that the fire hadn't reignited.

With the exception of a lightning-sparked house fire in Suquamish on Saturday evening, no other weather-related incidents have been reported to NKF&R crews.

There were no injuries to firefighters or civilians in Sunday's incident.

City adopts tax ordinance to improve affordable housing

By KEN PARK
Kitsap News Group

Poulsbo City Council unanimously adopted a sales tax ordinance that will provide roughly $34,000 in annual funding to be invested in affordable housing.

Additionally, the council voted unanimously to set up a task force that would work together on a plan for how to use the appropriated funds. This is a requirement of the legislation which has a deadline of January 2020 according to Poulsbo's Finance Director Debbie Booher. To be clear this is not a new tax on Poulsbo citizens, but a reappropriation of taxes already being paid to the state.

"One word of caution is that developing committees can take some time, and we are under a bit of a time crunch because we have to have a plan developed once we start receiving the funds," Booher said.

Councilmember David Musgrove requested that a committee be set up as soon as possible following the unanimous vote.

"To make sure that this goes forward at maximum possible speed and meets the required timelines, I would like to move to commit this item to an ad-hoc committee of six members, so that it can be developed, presented and processed as quickly as possible with all options," Musgrove said.

The sales tax ordinance comes out of recently approved legislation, House Bill 1406.

HB1406 created the sales tax revenue sharing program that allows cities and counties to access a portion of state sales tax revenue to invest in affordable housing.

Washington state collects about 6.5% in sales tax, in this case, the city of Poulsbo would receive 0.073% of that tax which portions out to about $34,000 annually to invest in affordable housing solutions. The city would be able to double that effort if Kitsap County was not also chosen to participate in the sales tax revenue.

The funds can be used to acquire, rehab or construct affordable housing which may include new units of affordable housing within an existing structure or facilities providing supportive housing services, or funding the operations and maintenance of new units of affordable housing.

Since the population of Poulsbo has less than 100,000 people the funds can also be used for rental assistance, something that council member Ken Thomas fully supports.

"While this is not a large amount of money, we can't go out and build any big projects with this. But for a lot of folks who are looking for affordable housing, paying the monthly rent can be a stretch, but they can pull it off. What is often a huge barrier is all the deposits. In my mind the way to leverage the tax revenue that this will bring in is to find a way to help with deposits for utilities, first and last month's rent, so that people can get past those barriers and get a roof over their heads," Thomas said.

Mayor Erickson sees things differently, noting that while rental assistance could be great for one family, it doesn't help many families.

"While I understand what Mr. Thomas said, if we start augmenting people's income, we can only help one family at a time. We really need to look at increasing housing stock. I've got some ideas on what that looks like. $34,000 doesn't sound like a lot of money, but when you talk about getting that every year, year after year, that turns into a very interesting revenue stream in order to invest in additional housing," Erickson said.

One of the other requirements of HB 1406 is that the beneficiaries of the affordable housing sales tax make less than 60% the median income.

According to U.S. Census data, the median income for Poulsbo is $61,455 a year, meaning individuals and families would need to make less than $37,000 a year to qualify under the tax.

Cornfield

Continued from page 4

the same kind of suggestion made the last time the auditor took a measure of the tax breaks in 2014.

Lawmakers did take note the last time. Rep. June Robinson, D-Everett, put forth legislation in 2014 and 2015 to tie the number of jobs at Boeing with the size of the tax break it receives.

But those bills went nowhere. Inslee steered clear of them.

The hearing provided Inslee another chance to wage his campaign against corporate extortion a short distance from his office — and with a row of Boeing officials on hand to hear it. He was a no-show.

Also absent — and a subject for another day — were aerospace machinists and engineers who fought for those clawback bills in 2014 and 2015.

Inslee's aerospace advisor, Robin Toth, did attend. She delivered a promotional message of the industry's strength and importance, and of the state's efforts to attract more aerospace companies to Washington. She veered wide of the issue of whether a jobs-related metric should be appended to the tax-break law.

"I don't really have a position on that," she said afterward. "I haven't gotten anything from the governor on that."

Silence at home and protest abroad has been Inslee's M.O. on this subject in two terms.

If he seeks and secures a third — he says he is all in but climate change czar will be hard to pass up if a Democrat becomes president — it may embolden the governor to face those muggers.

Jerry Cornfield is a political reporter for The Daily Herald in Everett, a Sound Publishing Co. publication. Cornfield can be contacted at 360-352-8623 and jcornfield@heraldnet.com.

Brunell

Continued from page 4

parent to Horizon, reported its regional traffic increased 14.6 percent on a 12.9 percent increase in capacity compared to July 2018.

"For years, Boeing and Airbus focused on larger, more-profitable jetliners and shifted away from the smaller planes, which have similar development costs but sell for lower prices.

"Airbus' deal with Bombardier and Boeing's pact with Embraer signal that the big plane-makers intend to deny a foothold in the lucrative narrow-body market to ambitious newcomers, such as Commercial Aircraft Corp. of China," Bloomberg reported in April. (Update: Mitsubishi bought Bombardier's regional jet program in June).

"A longtime supplier of aircraft components to Boeing, Mitsubishi Heavy, the parent of Mitsubishi Regional Jet (MRJ), plans to emerge from its customer's (Boeing) shadow," Bloomberg added. It developed and manufactures major airframe components, including fuselage panels for the Boeing 777 and composite-material wing boxes for the 787.

Mitsubishi spent at least $2 billion over more than a decade developing SpaceJet. Its launch partner is All Nippon Airways (ANA) — one of Boeing's first 787 buyers.

"The aviation market in Asia is expected to grow further in the coming years, and there will be demand for these aircraft," said Lee Dong-heon, an analyst at Daishin Securities Co. in Seoul. "The shift in the regional aviation segment we have seen over the last year or so has opened opportunities."

In order to compete, Mitsubishi can't just rely on its home market. The biggest customers therefore could be in the U.S., where large airlines try to cut costs by outsourcing short flights to smaller carriers that fly regional jets, Bloomberg concluded.

The good news is Mitsubishi has strong ties with Boeing and Washington State. MRJ is flight testing the SpaceJet in Moses Lake and established its U.S. headquarters in Renton.

Don C. Brunell is a business analyst, writer and columnist. He can be contacted at theBrunells@msn.com.

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Lead Agency Conducting the Review:
United States Navy

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Anticipated Date of 5-Year Review Completion: December 2020

BR-GC02606026-01

Central Kitsap Reporter

Affidavit of Publication

State of Washington }
County of Kitsap } ss

Leanna Hartell being first duly sworn, upon oath deposes and says: that he/she is the legal representative of the Central Kitsap Reporter a weekly newspaper. The said newspaper is a legal newspaper by order of the superior court in the county in which it is published and is now and has been for more than six months prior to the date of the first publication of the Notice hereinafter referred to, published in the English language continually as a weekly newspaper in Kitsap County, Washington and is and always has been printed in whole or part in the Central Kitsap Reporter and is of general circulation in said County, and is a legal newspaper, in accordance with the Chapter 99 of the Laws of 1921, as amended by Chapter 213, Laws of 1941, and approved as a legal newspaper by order of the Superior Court of Kitsap County, State of Washington, by order dated June 16, 1941, and that the annexed is a true copy of CKR872023 as it was published in the regular and entire issue of said paper and not as a supplement form thereof for a period of 3 issue(s), such publication commencing on 09/06/2019 and ending on 09/20/2019 and that said newspaper was regularly distributed to its subscribers during all of said period.

PAID IN FULL

The amount of the fee for such publication is $702.03.

Leanna Hartell

Subscribed and sworn before me on this 20th day of September, 2019.

Diana L. Beaver

DIANA L BEAVER COMMISSION EXPIRES NOTARY PUBLIC 4-29-21 STATE OF WASHINGTON

Notary Public in and for the State of Washington.

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Published: Central Kitsap Reporter September 6, 13 and 20, 2019

Legal #: CKR872023

Run with the Cops 5K Sept. 7 at Olympic College

By TYLER SHUEY
Kitsap News Group

Local law enforcement agencies will participate in the Run with the Cops 5K for Special Olympics Washington Saturday, Sept. 7, at Olympic College in Bremerton.

The family-friendly event is part of a series of 5K races around the state this summer. It is a key fundraiser for the Law Enforcement Torch Run campaign for Special Olympics Washington, which raises funds and awareness for athletes with intellectual disabilities.

In 2018, the Run with the Cops series raised more than $30,000 for Special Olympics Washington from sponsors and more than 400 participants.

The race begins at 8:30 a.m. Online registration is available until 9 a.m. Friday, Sept. 6. Day of registration opens at 7 a.m. at Olympic College in Bremerton.

Adult pre-registration is $30 and will increase to $40 on the day of the run. One child registration (10 years and younger) is free with one paid adult. Additional child registration is $20 for pre-registration and $25 for registration the day of the event.

For more information, visit RunWithTheCopsWA.com.

Walk to End Alzheimer's event set for Saturday, Sept. 7, in Bremerton

By TYLER SHUEY
Kitsap News Group

The Alzheimer's Association, Washington State Chapter will be putting on the Kitsap Peninsula Walk to End Alzheimer's Saturday, Sept. 7 at Louis Mentor Boardwalk in Bremerton.

The Walk to End Alzheimer's is the world's largest event to raise funds and awareness for Alzheimer's disease. Last year, 384 people participated in the local event, raising $42,819. Funds raised for the event are used for Alzheimer's research and to provide care and support services for local families impacted by the disease.

"This is a wonderful event where people come together, honor their loved ones and raise funds to fight Alzheimer's," Jim Wilgus said, executive director for the Alzheimer's Association, Washington State Chapter. "There's a real sense of community and camaraderie at the Walk to End Alzheimer's — a sense of hope that, by working together, we will end this disease."

Registration for the walk begins at 8 a.m., followed by an opening ceremony at 9 a.m. and the two-mile walk at 9:30 a.m. The free event is family-friendly and the walk route is fully accessible. Participants who donate or raise $100 or more will receive a Walk to End Alzheimer's t-shirt.

In Washington, there are more than 110,000 people living with Alzheimer's and another 348,000 unpaid caregivers providing support to their loved ones, according to AAWSC. It is the sixth-leading cause of death nationally, and the third-leading cause of death in the state.

"Alzheimer's disease is the only leading cause of death that currently cannot be prevented, cured or even slowed," Wilgus said. 'The Walk to End Alzheimer's is an opportunity for people to get involved and take action against this devastating disease and move us closer to a world without Alzheimer's."

For questions about the Kitsap Peninsula Walk to End Alzheimer's, contact Walk Manager Roxy Robertson at rorobertson@alz.org or at 206-363-5500. To register, visit alz.org/walk or call 1-800-272-3900.

Kitsap Strong fundraiser Saturday

By **TYLER SHUEY**
Kitsap News Group

Kitsap Strong, a community initiative to improve the health and well-being of children, family, and adults, will send dozens of "edgers" rappelling off the Norm Dicks Government Center as part of their Over the Edge fundraiser Sept. 14.

The free resource fair from 11 a.m. to 2 p.m. will provide kids activities, including a bouncy house, food vendors, and the Peninsula Community Health Services Mobile Clinic. Edgers will be announced as they descend during the fair.

Notable elected officials participating in the rappelling this year include Kitsap County Commissioner Ed Wolfe, Bremerton Mayor Greg Wheeler, former Bremerton Mayor Patty Lent, and Bainbridge Island Mayor and President and CEO of Kitsap Community Foundation Kol Medina.

"Although rappelling off a building is very much out of my comfort zone, the opportunity to help Kitsap Strong and encourage others to participate in this challenge is one I can't pass up," Medina said.

Participants were each asked to raise $1,000 in funds, either individually or as part of a team, according to a press release. Community members are invited to donate to individual or team rappellers or register to participate at kitsapstrong.org.

Other requirements for edgers include a weight range between 100 to 300 pounds and a parent or guardian signature for participants under the age of 18. No experience or advanced training is required, the release states. Over the Edge will also provide all gear and day-of-event training and support.

Transit driver cited after nearly hitting two boys on their bikes

By **TYLER SHUEY**
Kitsap News Group

Photo courtesy of the Kitsap County Sheriff's Office

A Kitsap Transit bus driver was recently cited after an August 16 incident where two 12-year-old boys on their bikes were nearly hit by the bus, according to Kitsap County Sheriff's Deputy Scott Wilson.

The incident occurred just before 9 a.m. at the intersection of Aegean Boulevard and Sunset Avenue in East Bremerton. The two boys had to jump off their bikes to avoid being hit by the bus, according to Wilson.

The 64-year-old female bus driver told authorities that she did not see the boys on their bikes and that she made too sharp of a left turn, resulting in a portion of the bus being in the east-bound lane of Aegean Boulevard where the two boys on their bikes were stopped. One boy did suffer scrapes while jumping out of the way of the bus, Wilson said.

The driver was cited for failure to drive on the right side of the road and did not show any signs of impairment, according to Wilson.

Micek

Continued from page 4

And here we are again, with Trump raiding the Treasury — not to help soldiers, but to reinforce his own vanity and secure his own political fortunes. And roughly half the nation will be asked to make that sacrifice.

The Pentagon's diversion of funds will affect "upgrades to infrastructure and training facilities at military installations in 23 states," the Post reported, including the home states of some of Trump's most ardent backers on Capitol Hill.

Upgrades to military bases in 19 foreign countries will also be impacted, and all at a time when American forces are being relied upon to carry a heavier load around the world.

And for what? A border wall that 60 percent of respondents to a recent Gallup poll oppose, even as an equally consistent majority support a path to citizenship for undocumented immigrants.

Trump has already acknowledged to lawmakers that actual immigration reform and enhanced border security are more effective than any physical barrier. Yet here the White House is, looting funds from badly needed military projects, just to satisfy Trump's edifice complex.

Serving in the military is dangerous enough. One can't help but wonder how much more of this "love" from the White House our forces can be asked to endure.

An award-winning political journalist, John L. Micek is the editor-in-chief of The Pennsylvania Capital-Star in Harrisburg, Pennsylvania. Email him at jmicek@penncapital-star.com and follow him on Twitter @ByJohnLMicek.

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BACKGROUND
The Naval Undersea Warfare Center was added to the National Priorities List (NPL) in October 1989. The site is now referred to by the Navy as Naval Base Kitsap Keyport. Cleanup actions have been conducted at several areas within Naval Base Kitsap Keyport Operable Units (OUs) 1 and 2 where environmental contamination was identified in the past. OU 1 consists of Area 1 (the former base landfill), and OU 2 consists of the remaining areas of concerns (Areas 2, 3, 5, 8, and 9). These sites have undergone environmental investigation and/or remediation to address the potential impacts of contamination to human health and the environment. Based on initial evaluation and investigations, Areas 3, 5, and 9 have been issued "No Further Action" determinations by the U.S. Environmental Protection Agency, as documented in the OU 2 ROD.

The remedy for Area 1, OU 1 consists of treating volatile organic compound (VOC) hot spots in the landfill using phytoremediation by poplar trees in concert with natural attenuation; removing PCB-contaminated sediments; upgrading the tide gate and landfill cover; implementing institutional controls; and conducting long-term monitoring.
The selected remedy for Area 2, OU 2 consists of institutional controls and groundwater monitoring.

The selected remedy for Area 8, OU 2 includes removal and off-site disposal of impacted soil above the groundwater table, implementing institutional controls, and long-term monitoring of groundwater, sediment, and marine biota.

An initial statutory 5-year review was finalized in 2000, and subsequent 5-year reviews were finalized in 2005, 2010 and 2015.

Site-specific information and links to documents such as records of decisions are available on the following Navy website: https://www.navfac.navy.mil/navfac_worldwide/pacific/fecs/northwest/about_us/northwest_documents/environmental-restoration/nbk_keyport.html

YOU ARE INVITED TO PARTICIPATE IN THIS PROCESS

The Navy welcomes your participation in the 5-year review process. You may participate by submitting your comments or concerns about these environmental cleanup actions at Naval Base Kitsap Keyport by mail, telephone, or email. Point-of-contact information is provided below.

The completed fifth 5-year review document will be available for review at the Navy website listed above. A Notice of Completion will be published at that time in the North Kitsap Herald, Central Kitsap Reporter, Kitsap Sun and at *www.keyport98345.com.*

POINT OF CONTACT AND TELEPHONE NUMBER FOR ADDITIONAL INFORMATION
NAVFAC Northwest Public Affairs Officer
NAVFAC Northwest
1101 Tautog Circle
Silverdale, WA 98315
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Anticipated Date of 5-Year Review Completion: December 2020

BR-GCI0260626-01

It's 'F-bombs' away! Our cursed 2020 campaign

OPINION

By TOM PURCELL

Some presidential candidates, past and present, sure have cursed up a storm.

The Washington Examiner notes Julian Castro said the "BS" word on HBO. Ohio Rep. Tim Ryan called on Republicans to "get their 's-word' together." Hawaii Rep. Tulsi Gabbard used the "b-word" to describe President Trump and New York Sen. Kirsten Gillibrand told a group of activists that "if we are not helping people, we should go the 'f-word' home."

Then there's the queen mother of today's cussing campaigners: Beto "F-bomb" O'Rourke.

He has used the "f-word" as a noun, verb, adjective, adverb, pronoun, preposition, conjunction, interjection — pretty much everything but a dangling participle, whatever the "h-e-double-hockey-sticks" that is.

O'Rourke has been struggling in the polls since Mayor Pete "Trump 'P.O.'d' our allies" Buttigieg stole his thunder. O'Rourke's cursing appears to be a ploy for attention, which is all it's getting him.

I agree with political observers who cite two reasons for the increasing use of salty language.

Emma Byrne, author of "Swearing is Good for You: The Amazing Science of Bad Language," tells Smithsonian there is a science to why we curse. She says "peppering our language with dirty words can actually help us gain credibility and establish a sense of camaraderie" — if it's done properly.

She distinguishes between "propositional swearing, which is deliberate and planned, and non-propositional swearing, which can happen when we're surprised, or among friends or confidants."

O'Rourke's swearing comes across as contrived — a sign of weakness from an unserious candidate trying to make headlines.

That brings us to the second reason for politicians' increasingly salty language: President Trump, who, according to Factba.se transcripts, has cursed publicly at least 87 times since 2017.

The thinking is that Trump's "everyday Joe" cursing has lowered the bar for political discourse, but that other politicians emulating him fail to understand that he's a master of non-propositional swearing, which — at least among his supporters — may actually boost his political status.

When Trump curses, Byrne says, it comes across as a "sign of honesty" from a non-politician who "tells it like it is."

It's enough to make a Trump opponent curse.

Trump certainly isn't the first president to use profanities. Time reports that after a Revolutionary War battle, George Washington "swore … till the leaves shook on the trees."

During the 1948 election, President Truman acquired the nickname "Give 'Em Hell Harry" at a time when "hell" offended no small number of Americans.

Once his now-infamous tapes went public, President Nixon turned out to be a master of naughty words.

And Lyndon Baines Johnson — perhaps our most gifted presidential user of curse words — had a reputation for verbal obscenity.

In the past, political leaders cussed in private, not in public. Today, though, it's not just politicians swearing more. It's everyone.

A 2017 study by San Diego State University psychologist Jean M. Twenge showed a dramatic increase in cursing, which she attributed to America's growing individualism, "a cultural system that emphasizes the self more and social rules less." She explained that "as social rules fell by the wayside, and people were told to express themselves, swearing became more common."

That doesn't bode well for our cussing politicians. The more they and everyone else use taboo terms, the less taboo those terms become and the less impact they have.

If the use of salty language in our increasingly strident political discourse troubles you, here's a key takeaway from the 2020 campaign season:

We're all cursed.

Tom Purcell, author of "Misadventures of a 1970's Childhood," a humorous memoir available at amazon.com, is a Pittsburgh Tribune-Review humor columnist and is nationally syndicated exclusively by Cagle Cartoons Inc. Purcell can be contacted at Tom@TomPurcell.com.

Brunell

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At stake, particularly in the market for jets with fewer than 100 seats, is $135 billion in sales over the next 20 years or so, according to industry group Japan Aircraft Development Corp.

Horizon's business is growing rapidly. In July, Alaska Air Group, parent to Horizon, reported its regional traffic increased 14.6 percent on a 12.9 percent increase in capacity compared to July 2018.

"For years, Boeing and Airbus focused on larger, more-profitable jetliners and shifted away from the smaller planes, which have similar development costs but sell for lower prices.

"Airbus' deal with Bombardier and Boeing's pact with Embraer signal that the big plane-makers intend to deny a foothold in the lucrative narrow-body market to ambitious newcomers, such as Commercial Aircraft Corp. of China," Bloomberg reported in April. (Update: Mitsubishi bought Bombardier's regional jet program in June).

"A longtime supplier of aircraft components to Boeing, Mitsubishi Heavy, the parent of Mitsubishi Regional Jet (MRJ), plans to emerge from its customer's (Boeing) shadow," Bloomberg added. It developed and manufactures major airframe components, including fuselage panels for the Boeing 777 and composite-material wing boxes for the 787.

Mitsubishi spent at least $2 billion over more than a decade developing SpaceJet. Its launch partner is All Nippon Airways (ANA) — one of Boeing's first 787 buyers.

"The aviation market in Asia is expected to grow further in the coming years, and there will be demand for these aircraft," said Lee Dong-heon, an analyst at Daishin Securities Co. in Seoul. "The shift in the regional aviation segment we have seen over the last year or so has opened opportunities."

In order to compete, Mitsubishi can't just rely on its home market. The biggest customers therefore could be in the U.S., where large airlines try to cut costs by outsourcing short flights to smaller carriers that fly regional jets, Bloomberg concluded.

The good news is Mitsubishi has strong ties with Boeing and Washington State. MRJ is flight testing the SpaceJet in Moses Lake and established its U.S. headquarters in Renton.

—Don C. Brunell is a business analyst, writer and columnist. He can be contacted at theBrunells@msn.com.

Cornfield

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The hearing provided Inslee another chance to wage his campaign against corporate extortion a short distance from his office — and with a row of Boeing officials on hand to hear it. He was a no-show.

Also absent — and a subject for another day — were aerospace machinists and engineers who fought for those clawback bills in 2014 and 2015.

Inslee's aerospace advisor, Robin Toth, did attend. She delivered a promotional message of the industry's strength and importance, and of the state's efforts to attract more aerospace companies to Washington. She veered wide of the issue of whether a jobs-related metric should be appended to the tax-break law.

"I don't really have a position on that," she said afterward. "I haven't gotten anything from the governor on that."

Silence at home and protest abroad has been Inslee's M.O. on this subject in two terms.

If he seeks and secures a third — he says he is all in but climate change czar will be hard to pass up if a Democrat becomes president — it may embolden the governor to face those muggers.

Jerry Cornfield is a political reporter for The Daily Herald in Everett, a Sound Publishing Co. publication. Cornfield can be contacted at 360-352-8623 and jcornfield@heraldnet.com.

APPENDIX B
COMPLETED INTERVIEW RECORDS

Fifth Five-Year Review Interview Record
NBK Keyport
Keyport, WA

TYPE 2 INTERVIEW - REGULATORY AGENCY

Name: Mahbub Alam	
Title: Environmental Engineer	**Association to NBK Keyport:** Regulatory review
Organization: WA Department of Ecology	**Years of Association:** 3
Telephone: 3604076913	**Email:** mala461@ecy.wa.gov
Contact Made By:	**Date:** 11/7/2019

QUESTIONNAIRE

1. Please describe your degree of familiarity with the Naval Base Kitsap (NBK) Keyport Records of Decision (RODs) for Operable Units (OUs) 1 and 2; the implementation of the remedies at these OUs; the monitoring and maintenance that has taken place since implementation of the remedies; and recommendations made during the fourth five-year review (FYR) finalized in 2015. For reference OU 1 includes only one active site, whereas OU 2 includes two active sites, as follows:

OU 1 – Former Base Landfill

OU 2 Area 2 – Van Meter Spill and Drum Storage Areas

OU 2 Area 8 – Former Plating Shop

Response:

I am familiar with the sites and their remedies. As Ecology project manager, I have been involved in the regulatory oversight for these operable units.

2. What is your overall impression of the on-going effectiveness of the components of the OU 1 remedy? For reference, the primary remedy components are:

- Phytoremediation at the former landfill using hybrid poplar trees
- Removal of PCB-contaminated sediments from the marsh
- Upgrade of the tide gate
- Upgrade and maintenance of the landfill cover
- Long-term monitoring
- Contingent actions for off-base domestic wells
- Institutional controls

Response:

The remedy of the OU 1 has failed to attain remedial action objectives (RAOs). The site does not seem to pose immediate danger to human health and environment but may pose risk in the long term. The site is going through re-characterization, source area assessments, and Tier II ecological and human health risk assessments.

3. What is your overall impression of the on-going effectiveness of the components of the OU 2 remedy? For reference, the primary remedy components are:

- Institutional controls and groundwater monitoring at Area 2
- Excavation and off-site disposal of vadose-zone soil at Area 8
- Institutional controls and monitoring of groundwater, sediments, and shellfish at Area 8

Response:

The remedy at OU 2 Area 2 remains effective but it has not achieved cleanup levels or taking longer to achieve cleanup level.

However, the remedy for OU 2 Area 8 is not effective. Recent groundwater seeps bioassay results as part of ecological risk assessment showed adverse effects to ecological receptors. In addition, the site groundwater is long way from attaining drinking water quality which calls into question of monitored natural attenuation (MNA). The remedy needs to be revised for groundwater treatment/control besides MNA and institutional control to obtain remedial action objectives.

4. The phytoremediation component of the OU 1 remedy is not operating as anticipated in the southern portion of the former landfill. The Navy has been performing additional investigations, including a USGS modeling effort, to evaluate possible actions to shorten the restoration timeframe and improve the remedy performance. What is your impression of the progress towards reassessing this component of the remedy?

Response:

I think the overall progress made by the Navy is good. However, it appears the whole site, not only the southern plantation which has the highest contamination, has some hot spot areas that need remediation. In addition, it appears the soil mound north of northern plantation are contaminated with TPH and PCBs (new findings). It needs further investigation and assessment to see if these contaminations pose any risks or hazards to human health and environment.

5. To the best of your knowledge, has the on-going program of institutional controls inspections and environmental monitoring at OUs 1 and 2 been sufficiently thorough and frequent to meet the goals of the RODs? Have the monitoring data been timely and of acceptable quality? Please indicate the basis for your assessment.

Response:

The IC inspections have been routine and thorough to my knowledge. The Navy provides a report depicting the IC inspection results. The monitoring data so far have been of acceptable quality. A Tier II QAPP is always prepared and reviewed by the agencies. The data report showing the monitoring data also meets expected quality.

6. To the best of your knowledge, have the recommendations made during the fourth FYR been adequately implemented/incorporated into the remedy operation, maintenance, and monitoring program? Please indicate the basis for your assessment.

Response:

While I was not involved in the last FYR process, it appears the Navy has made significant progress on the recommendations. All recommendations were taken up for follow up although some milestone dates may have missed. There are still issues in both OU 1 and OU 2 and Ecology expects this FYR will include more robust recommendations to move these sites closer to meeting RAOs.

7. What is your overall impression of meeting the recommendations from the fourth FYR?

Response:

See above response for question #6.

8. What do you see as major accomplishments for OUs 1 and 2 since the fourth FYR?

Response:

OU 1 - Site re-characterization to refine the conceptual site model (CSM). Startup of Tier II Human health and Ecological risk assessment. Completion of VI study to evaluate and eliminate the vapor pathway.

OU 2 - Completion of Human health and Ecological risk assessment. Completion of VI study to evaluate and eliminate the vapor pathway.

9. Are you aware of any (Tribal or) community concerns regarding implementation of the remedies at OUs 1 and 2? If so, please give details.

Response:

No.

10. Are you aware of, and do you feel well informed about the additional investigations that have occurred at OU 1 and OU 2 Area 8 over the past five years? Please elaborate.

Response:

I am aware of all the investigations happening in OU 1 and OU 2 Area 8. The Navy has arranged project team meetings regularly to brief the stakeholders about plans, data, and comment responses. Emphasis on Field visits, use of collaboration websites for site documents sharing, e.g., box, were some additional efforts made by the Navy for the Agencies.

11. To the best of your knowledge, since June 2014, have there been any new scientific findings that relate to potential site risks that might call into question the protectiveness of the remedies?

Response:

PFAS contamination at Navy sites have become an issue lately. It is unknown whether PFAS contamination exists or affects protectiveness at this time. The Navy has performed a preliminary assessment (PA) for Keyport without any stakeholder involvement. Ecology expect the Navy will involve the stakeholders in the next phase of assessment.

12. Since June 2014, have there been any complaints, violations, or other incidents related to NBK Keyport installation restoration that required a response by your office? If so, please provide details of the event(s) and results of the response(s).

Response:

To the best of my knowledge, I am not aware of any incidents related to Keyport.

13. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at NBK Keyport?

Response:

For OU 1, the Navy needs to revise the CSM to a point that remedial actions can be implemented to remediate not only the hot spots (source areas) but also the other areas as needed so that the surface water, sediment and groundwater can be returned to their beneficial uses within a reasonable timeframe. For OU2, the Navy needs to implement a groundwater remedy to protect the affected ecological receptors and restore the aquifer to drinking water quality.

Fifth Five-Year Review Interview Record
NBK Keyport
Keyport, WA

TYPE 2 INTERVIEW - REGULATORY AGENCY

Name: John Evered	
Title: Toxicologist/Sediment Specialist	**Association to NBK Keyport:** Regulatory support staff
Organization: WA Dept of Ecology	**Years of Association:** 4.5
Telephone: 360 407 7071	**Email:** jeve461@ecy.wa.gov
Contact Made By: Jody Lipps	**Date:** 11/22/19

QUESTIONNAIRE

1. Please describe your degree of familiarity with the Naval Base Kitsap (NBK) Keyport Records of Decision (RODs) for Operable Units (OUs) 1 and 2; the implementation of the remedies at these OUs; the monitoring and maintenance that has taken place since implementation of the remedies; and recommendations made during the fourth five-year review (FYR) finalized in 2015. For reference OU 1 includes only one active site, whereas OU 2 includes two active sites, as follows:

OU 1 – Former Base Landfill

OU 2 Area 2 – Van Meter Spill and Drum Storage Areas

OU 2 Area 8 – Former Plating Shop

Response:

I have provided support to the Ecology project manager related to sediment issues since 2015. I have primarily been involved with the issues related to the investigation and remedy at OU 2 area 8 and provided sediment technical support to the assessment at the OU 1 landfill. I have not been involved any remedial decisions or investigations at OU 2 area 2

2. What is your overall impression of the on-going effectiveness of the components of the OU 1 remedy? For reference, the primary remedy components are:

- Phytoremediation at the former landfill using hybrid poplar trees
- Removal of PCB-contaminated sediments from the marsh
- Upgrade of the tide gate
- Upgrade and maintenance of the landfill cover
- Long-term monitoring
- Contingent actions for off-base domestic wells
- Institutional controls

Response:

Although OU 1 seems to not pose any immediate risks to human health or the environment, recent sampling results suggest that the contamination present may pose risks in the long term. I believe the recently proposed tier II human health and ecological risk assessments, site re-characterization and source area assessment will provide important information related to remedy effectiveness and protectiveness.

3. What is your overall impression of the on-going effectiveness of the components of the OU 2 remedy? For reference, the primary remedy components are:

- Institutional controls and groundwater monitoring at Area 2
- Excavation and off-site disposal of vadose-zone soil at Area 8
- Institutional controls and monitoring of groundwater, sediments, and shellfish at Area 8

Response:

I have not been involved in decisions related to OU 2 area 2, so I defer to Ecology's project manager who stated that the remedy remains effective but has not achieved cleanup goals. Recent results from the groundwater seep bioassays as part of the OU 2 area 8 ecological risk assessment show adverse effects to receptors, suggesting that the remedy is not protective. Monitored natural attenuation has not been effective in meeting drinking water groundwater standard or preventing impacts to the sediments and shellfish at Area 8.

4. The phytoremediation component of the OU 1 remedy is not operating as anticipated in the southern portion of the former landfill. The Navy has been performing additional investigations, including a USGS modeling effort, to evaluate possible actions to shorten the restoration timeframe and improve the remedy performance. What is your impression of the progress towards reassessing this component of the remedy?

Response:

I defer to the Ecology project manager who stated that the whole site, not only the southern plantation, has contamination hot spots. For example the soil mound in the north plantation with recently discovered TPH and PCB contamination that likely will require further investigation.

5. To the best of your knowledge, has the on-going program of institutional controls inspections and environmental monitoring at OUs 1 and 2 been sufficiently thorough and frequent to meet the goals of the RODs? Have the monitoring data been timely and of acceptable quality? Please indicate the basis for your assessment.

Response:

To the best of my knowledge IC inspections and environmental monitoring at OU 1 and OU 2 area 8 have been sufficient to attempt to meet the goals of the ROD. Monitoring has been timely, conducted in accordance with an approved QAPP, and data quality is as expected.

6. To the best of your knowledge, have the recommendations made during the fourth FYR been adequately implemented/incorporated into the remedy operation, maintenance, and monitoring program? Please indicate the basis for your assessment.

Response:

Although I was not directly involved in the development process of the last five year review, I believe the Navy has made progress on the previous recommendations. Following the recommendation at OU2 Area 8 to complete an additional risk assessment, risks were identified that will require the implementation of additional groundwater controls. Additional PCB seep data was also collected per a recommendation at OU 1 as well as a vapour intrusion evaluation at OU 1 and OU2 area 8.

7. What is your overall impression of meeting the recommendations from the fourth FYR?

Response:

See answer to question #6

8. What do you see as major accomplishments for OUs 1 and 2 since the fourth FYR?

Response:

OU 1 - Complete a site re-characterization to refine the conceptual site model and initiate a tier II human health and ecological risk assessment.

OU 2 - Completion of a human health and ecological risk assessments, specifically seep bioassay's following project teams recommendation, that identified risks to sediment benthic organisms.

9. Are you aware of any (Tribal or) community concerns regarding implementation of the remedies at OUs 1 and 2? If so, please give details.

Response:

None other than have been raised by the Suquamish Tribe in project meetings.

10. Are you aware of, and do you feel well informed about the additional investigations that have occurred at OU 1 and OU 2 Area 8 over the past five years? Please elaborate.

Response:

The Navy and their consultants have kept project team members well informed of additional investigations occurring at OU 1 and OU 2 area 8. Project team meetings have been arranged as needed to brief stakeholders on issues requiring input and adequate review periods have been provided for documents requiring comment and review.

11. To the best of your knowledge, since June 2014, have there been any new scientific findings that relate to potential site risks that might call into question the protectiveness of the remedies?

Response:

The emergence of PFAS as a contaminant of concern may call in to question the protection of the remedies, in particular at OU 2 area 8. The presence of a metal plating shop up-gradient of the beach is concerning, due to the use of PFOS as a fire suppressant during the electroplating process. Metal plating facilities have been identified as potential source areas during the PFAS preliminary assessment at Puget Sound Naval Shipyard. I request that Ecology's project manager be included in the next phase of PFAS assessment or investigation.

12. Since June 2014, have there been any complaints, violations, or other incidents related to NBK Keyport installation restoration that required a response by your office? If so, please provide details of the event(s) and results of the response(s).

Response:

I am not aware of any complaints, violations or other incidents related to NBK that required a response by my office.

13. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at NBK Keyport?

Response:

No further comments. I look forward to completing the ecological and human health risk assessment at OU 1 and helping identify effective groundwater controls at OU 2 area 8.

Fifth Five-Year Review Interview Record
NBK Keyport
Keyport, WA

TYPE 3 INTERVIEW - COMMUNITY

Name: Clayton Schule	
Title: Keyport Neighbor and Former Worker	**Association to NBK Keyport:** Keyport Neighbor and Former Worker
Organization: Keyport Improvement Club (KIC)	**Years of Association:** 15
Telephone: (360)779-6563	**Email:** keyportschules@wavecable.com
Contact Made By: Clay Schule	**Date:** 10/25/19

QUESTIONNAIRE

1. Please describe your degree of familiarity with the Naval Base Kitsap (NBK) Keyport Records of Decision (RODs) for Operable Units (OUs) 1 and 2; the implementation of the remedies at these OUs; the monitoring and maintenance that has taken place since implementation of the remedies; and recommendations made during the fourth five-year review (FYR) finalized in 2015. For reference OU 1 includes only one active site, whereas OU 2 includes two active sites, as follows:

OU 1 – Former Base Landfill

OU 2 Area 2 – Van Meter Spill and Drum Storage Areas

OU 2 Area 8 – Former Plating Shop

Response:

I am a resident of Dogfish Bay (OU 1), significantly effected by the base landfill areas. I have reviewed the previous assessments of the work done to alleviate environmental damage done by the former base landfill. I would describe those efforts as cover it, contain it and let nature take it's course.

2. What is your overall impression of the on-going effectiveness of the components of the OU 1 remedy? For reference, the primary remedy components are:

- Phytoremediation at the former landfill using hybrid poplar trees
- Removal of PCB-contaminated sediments from the marsh
- Upgrade of the tide gate
- Upgrade and maintenance of the landfill cover
- Long-term monitoring
- Contingent actions for off-base domestic wells
- Institutional controls

Response:

After the original containment and Phytoremediation, there has been nothing of any great effect done to reduce the runoff from the former landfill into the "tide flats" and then into Dogfish Bay. We have watched the implanting of native little neck clams to help with the clean up, but without clean up of the inflow from the landfill to the marsh to the tide flat, etc., it did nothing.

As with many long term military facilities, the remedial action requires more active measures.

3. What is your overall impression of the on-going effectiveness of the components of the OU 2 remedy? For reference, the primary remedy components are:

- Institutional controls and groundwater monitoring at Area 2
- Excavation and off-site disposal of vadose-zone soil at Area 8
- Institutional controls and monitoring of groundwater, sediments, and shellfish at Area 8

Response:

In reading the remedy reports, it appears that the monitoring of these site are not as active as they need to be. Without the active monitoring, corrective actions are subject.

4. Are you aware of any community concerns regarding implementation of the remedies at OUs 1 and 2? If so, please give details.

Response:

I'm not sure of community response, but the ability for human consumption of shellfish from Dogfish bay would be an excellent measure of clean up.

5. Are you aware of, and do you feel well informed about the additional investigations that have occurred at OU 1 and OU 2 Area 8 over the past five years? Please elaborate.

Response:

I've read the report, but no other information.

6. What effects has the remedy operation, maintenance, and monitoring program at the OU 1 and OU 2 sites had on the surrounding community?

Response:

I'm sure the from the worst (I've not seen) it must have improved. But our children play in the waters associated with these sites. I watch for them removing shellfish from Dogfish Bay, and warn of consuming them.

7. Please provide the newspaper, website, or Facebook page you used to obtain local information.

Response:

I live there!

8. Do you have any other comments, concerns, or suggestions regarding the effectiveness of the cleanup measures implemented so far in protecting human health and the environment at NBK Keyport?

Response:

I would like more reporting of the real effects of the runoff on local waters like Dogfish Bay.

9. Do you know of any other individuals who should be interviewed as part of this FYR process? If so, please provide their name(s) and contact information.

Response:

Please come to a meeting of the Keyport Improvement club.

APPENDIX C
OU 1 CUMULATIVE LONG-TERM MONITORING DATA

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
North Plantation – Shallow Groundwater Wells										
1MW-1	8/25/1995	14	1 U	**5.1**	**590 J**	**180 J**	1 U	1 U	1 U	**1,000 J**
1MW-1	12/6/1995	1	1 U	1 U[1]	**87 J**	7.7	1 U	1 U	1 U	**210 J**
1MW-1	3/12/1996	8.5	0.5 U	**2.6**	**450 J**	**120 J**	0.5 U	0.5 U	0.62	**710**
1MW-1	6/26/1996	15	0.5 U	**3.2**	**460 J**	**220 J**	0.5 U	0.5 U	0.51 U	**1,200 J**
1MW-1	3/3/1998	4.5	0.5 U	0.42 J	**81 J**	34 J	0.5 U	0.5 U	0.5 U	**250 J**
1MW-1	6/11/1999	19	3 U	**4**	**420**	**240**	3 U	3 U	3 U	**1,300**
1MW-1	10/20/1999	17	0.5 U	**3.1**	**320**	**190**	0.5 U	0.5 U	0.5 U	**970**
1MW-1	4/25/2000	18	0.5 U	**3.1**	**380 J**	**200 J**	0.5 U	0.5 U	0.5 U	**1,200 J**
1MW-1	6/7/2000	14	0.5 U	**1.7**	**240 J**	**210 J**	0.5 U	0.5 U	0.58	**1,200 J**
1MW-1	7/24/2000	25 U	25 U[1]	25 U[1]	**280 J**	**170 J**	25 U[1]	25 U	25 U[1]	**920 J**
1MW-1	10/31/2000	17	1 U	**2**	**270**	**160**	1 U	1 U	1 U	**1,300**
1MW-1	4/27/2001	17	1 UJ	**3.9**	**250 J**	**170 J**	1 U	1 UJ	0.6 J	**770 J**
1MW-1	6/20/2001	19 J	0.58 U	**2.5 J**	**240 J**	**170 J**	0.55 U	0.56 U	0.59 U	**860**
1MW-1	7/30/2001	14 J	1 U	**2.4**	**240 J**	**170**	1 U	1 U	1 U	**1,500 J**
1MW-1	10/29/2001	14 J	1 U	**1.5**	**160 J**	**130**	1 U	1 U	1 U	**970 J**
1MW-1	4/30/2002	16 J	2.5 U	**2.6 J**	**280 J**	**180 J**	2.5 U	2.5 U	2.5 U	**750 J**
1MW-1	6/19/2002	12 J	0.57 U	**1.7 J**	**170 J**	**130 J**	0.55 U	0.57 U	0.59 U	**970 J**
1MW-1	7/23/2002	15 J	2.5 U	**2.6 J**	**280 J**	**200 J**	2.5 U	2.5 U	2.5 U	**1,100 J**
1MW-1	10/24/2002	15 J	2 U	**2 U[1]**	**180 J**	**130 J**	2 U	2 U	2 U	**570 J**
1MW-1	4/29/2003	10 J	0.23 U	**1.4 J**	**160 J**	94 J	0.22 U	0.23 U	0.24 U	**780 J**
1MW-1	10/14/2003	14 J	0.57 U	**1.4 J**	**140 J**	**140 J**	0.55 U	0.57 U	0.59 U	**840 J**
1MW-1	4/22/2004	12	0.12 U	**2 J**	**150 J**	**130 J**	0.11 U	0.12 U	0.31 J	**760 J**
1MW-1	10/13/2004	15	0.12 U	**1.2**	**130 J**	**140 J**	0.11 U	0.12 U	0.23 J	**900 J**
1MW-1	4/14/2005	0.4	0.2 U	0.2 U	0.4	0.6	0.2 U	0.2 U	0.2 U	**4.8**
1MW-1	10/13/2005	13	0.2 U	**0.9**	**100**	91	0.2 U	0.2 U	0.2 U	**830**
1MW-1	7/10/2006	11 DJ	2.5 UJ	**1.1 DJ**	**72 DJ**	**100 DJ**	2.5 UJ	2.5 UJ	2 JD	**820 DJ**
1MW-1	10/16/2006	12	0.5 U	**0.52**	56	92 D	0.5 U	0.5 U	0.14 J	**660 D**
1MW-1	6/13/2007	11	0.5 U	**0.68**	66 D	84 D	0.5 U	0.5 U	0.18 J	**600 D**
1MW-1	10/18/2007	13	0.5 U	**0.63**	69	86 D	0.5 U	0.5 U	0.15 J	**540 D**
1MW-1	5/13/2008	10 D	1 U	0.46 D	33 D	67 D	1 U	1 U	0.16 JD	**580 D**
1MW-1	10/28/2008	10 D	1 U	0.46 JD	39 D	71 D	1 U	1 U	1 U	**490 D**
1MW-1	6/18/2009	9.6 D	1 U	0.46 D	43 D	73 D	1 U	1 U	1 U	**570 D**
1MW-1	10/27/2009	8.3 D	1 U	0.2 JD	14 D	46 D	1 U	1 U	1 U	**420 D**
1MW-1	6/15/2010	9.2	0.5 U	0.45 J	39 D	60 D	0.5 U	0.5 U	0.17 J	**380 D**
1MW-1	10/25/2010	8.4 D	1.3 U	0.4 JD	31 D	31 D	1.3 U	1.3 U	1.3 U	**400 D**
1MW-1	7/18/2011	9.1	0.5 U	0.39 J	37	67	0.5 U	0.5 U	0.14 J	**370 D**
1MW-1	10/25/2011	8.1	0.5 U	0.27	31	60	0.5 U	0.5 U	0.5 U	**280 D**
1MW-1	6/12/2012	8.4	0.5 U	0.26 J	24	49	0.5 U	0.5 U	0.11 J	**290 D**
1MW-1	6/23/2014	6.1	0.5 U	0.19 J	17	35	0.5 UJ	0.5 U	0.5 U	**280 D**
1MW-1	6/21/2016	4.6	0.08 J	0.5 U	13	25	0.5 U	0.5 U	0.5 U	**230 D**
1MW-1	6/11/2019	3.2	0.2 UM	0.12 JM	9.9	23	0.5 U	0.2 U	0.2 U	**230 D**
MW1-02	8/28/1995	1 U	1 U	**4.2**	**1,400 J**	23	1 U	1 U	**36 J**	**150 J**
MW1-02	12/6/1995	1 U	1 U	**3.5**	**1,300 J**	22	1 U	1 U	**35 J**	**140 J**
MW1-02	3/11/1996	0.5 U	0.5 U	**4.8**	**1,800 J**	30 J	0.5 U	0.5 U	**41**	**200 J**
MW1-02	6/25/1996	0.23 J	0.5 U	**5.1 J**	**1,500 J**	31 J	0.5 U	0.5 U	**43 J**	**180 J**
MW1-02	3/2/1998	0.5 U	0.5 U	**3.4**	**1,200 J**	21	0.5 U	0.5 U	**29 J**	**110 J**
MW1-02	6/11/1999	3 U	3 U	**5**	**1,200**	26	3 U	3 U	**27**	**160**

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
MW1-02	10/20/1999	0.5 U	0.5 U	**3.4**	**1,000**	21	0.5 U	0.5 U	**23**	**110**
MW1-02	4/25/2000	0.5 U	0.5 U	**6**	**1,900 J**	49 J	0.5 U	0.5 U	**13**	**220 J**
MW1-02	6/8/2000	0.3 J	0.2 J	**3.2 J**	**890 J**	21 J	0.5 U	0.5 U	**22 J**	**110 J**
MW1-02	7/24/2000	25 U	25 U[1]	25 U[1]	**750 J**	25 U	25 U[1]	25 U	25 U[1]	**87 J**
MW1-02	10/31/2000	1 U	1 U	**2.2**	**810**	15	1 U	1 U	**12**	**85**
MW1-02	4/26/2001	1 U	1 UJ	**6.3**	**1,200 J**	44	1 U	1 UJ	**21**	**120 J**
MW1-02	6/20/2001	0.91 U	1.2 U	**3.6 J**	**950 J**	18 J	1.1 U	1.2 U	**19 J**	**89 J**
MW1-02	7/30/2001	1 U	1 U	**2.1**	**660 J**	43 J	1 U	1 U	**19**	**130 J**
MW1-02	10/29/2001	1 U	1 U	**2.4**	**700 J**	18	1 U	1 U	**14**	**93**
MW1-02	4/30/2002	2.5 U	2.5 U	**3.6 J**	**1,200 J**	29 J	2.5 U	2.5 U	**5 J**	**140 J**
MW1-02	6/19/2002	0.26 J	0.23 U	**2.2 J**	**660 J**	13 J	0.22 U	0.23 U	**15 J**	**75 J**
MW1-02	7/23/2002	1 U	1 U	**2.6 J**	**720 J**	16 J	1 U	1 U	**17 J**	**100 J**
MW1-02	10/24/2002	2.5 U	2.5 U	**2.7 J**	**910 J**	17 J	2.5 U	2.5 U	**21 J**	**120 J**
MW1-02	4/30/2003	0.37 U	0.46 U	**3.4 J**	**870 J**	18 J	0.44 U	0.46 U	**13 J**	**130 J**
MW1-02	10/15/2003	0.26 J	0.12 U	**2.6**	**710 J**	15	0.11 U	0.12 U	**19**	**120 J**
MW1-02	4/22/2004	0.37 J	0.12 U	**3.9**	**1,200 J**	22	0.11 U	0.12 U	**14**	**200 J**
MW1-02	10/13/2004	0.45 J	0.12 U	**3.6**	**930 J**	23	0.11 U	0.12 U	**6.6**	**160 J**
MW1-02	4/12/2005	0.3	0.2 U	**2.2**	**690**	15	0.2 U	0.2 U	**13**	**180**
MW1-02	10/12/2005	0.4	0.2 U	**2.9**	**810**	20	0.2 U	0.2 U	4.1	**140**
MW1-02	7/10/2006	2.5 U	2.5 U	**2.8 D**	**660 D**	17 D	2.5 U	2.5 U	2 JD	**150 D**
MW1-02	10/16/2006	0.33 J	0.5 U	**2**	**560 D**	16	0.5 U	0.5 U	1.3	**110 D**
MW1-02	6/13/2007	0.36 JD	1 U	**2.1 D**	**680 D**	16 D	1 U	1 U	**5.2 D**	**140 D**
MW1-02	10/18/2007	0.28 JD	1 U	**1.9 D**	**590 D**	15 D	1 U	1 U	**9.5 D**	**98 D**
MW1-02	5/8/2008	0.28 J	0.5 U	**1.8**	**460 D**	13	0.5 U	0.5 U	**7.5**	**110 D**
MW1-02	10/28/2008	0.25 JD	1.3 U	**1.8 D**	**420 D**	11 D	1.3 U	1.3 U	**9.1 D**	**88 D**
MW1-02	6/19/2009	0.22 JD	1 U	**1.5 D**	**460 D**	11 D	1 U	1 U	**6.4 D**	**87 D**
MW1-02	10/27/2009	0.26 JD	1 U	**1.8 D**	**440 D**	11 D	1 U	1 U	**6.2 D**	**91 D**
MW1-02	6/15/2010	0.27 J	0.5 U	**1.9**	**490 D**	13	0.5 U	0.5 U	**7.5**	**92 D**
MW1-02	10/25/2010	0.24 JD	1 U	**1.4 D**	**410 D**	10 D	1 U	1 U	**5.8 D**	**96 D**
MW1-02	7/19/2011	0.37 J	0.5 U	**1.7**	**440 D**	14	0.5 U	0.5 U	3	**90 D**
MW1-02	10/25/2011	0.28 J	0.5 U	**1.1**	**360 D**	9.9	0.5 U	0.5 U	2.3	**67**
MW1-02	6/12/2012	0.35 J	0.5 U	**1.8**	**450 D**	14	0.5 U	0.5 U	**5.8**	**81 D**
MW1-02	6/23/2014	0.34 J	0.5 U	**1.5**	**390 D**	13	0.5 UJ	0.5 U	4.7	**110 D**
MW1-02	6/21/2016	0.41 J	0.5 U	**1.2**	**330 D**	11	0.5 U	0.5 U	1.2	**89 D**
MW1-02	6/19/2017	0.31 J	0.5 U	**0.65**	**200 D**	6.6	0.5 U	0.5 U	2.1	**54**
MW1-02	6/18/2019	0.37	0.2 U	**0.63**	**160 D**	7	0.5 U	0.2 U	1.1	**79 DM**
MW1-03	3/8/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	6/21/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	9/11/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	10/20/1999	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.7	0.5 U
MW1-03	4/25/2000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	7/24/2000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	10/31/2000	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-03	4/27/2001	1 U	1 UJ	1 U[1]	1 U	1 U	1 U	1 UJ	1 U	1 U[1]
MW1-03	7/30/2001	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-03	10/29/2001	1 U	1 U	1 U[1]	1	1.1	1 U	1 U	1 U	**3.3**
MW1-03	4/30/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	7/23/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
MW1-03	10/24/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	4/29/2003	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
MW1-03	10/14/2003	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
MW1-03	4/21/2004	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
MW1-03	10/13/2004	0.091 U	0.12 U	0.12 U	0.12 U	0.15 U	0.11 U	0.12 U	0.12 U	0.23 J
MW1-03	4/12/2005	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
MW1-03	10/12/2005	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
MW1-03	7/12/2006	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-03	10/16/2006	0.5 U	0.5 U	0.3 U	0.17 J	0.5 U	0.5 U	0.5 U	0.5 U	0.09 J
MW1-03	6/13/2007	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-03	10/19/2007	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-03	5/7/2008	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-03	10/28/2008	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-03	6/19/2009	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-03	10/27/2009	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	6/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	10/25/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	7/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	10/25/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	6/12/2012	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-03	6/23/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
MW1-03	6/22/2016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-41	10/21/1999	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-41	4/26/2000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-41	6/8/2000	0.2 J	0.5 U	0.5 U	0.82	0.5 U	0.5 U	0.5 U	0.5 U	**0.53**
MW1-41	7/24/2000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-41	11/2/2000	1 U	1 U	1 U1	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-41	4/26/2001	1 U	1 UJ	1 U1	1 U	1 U	1 U	1 UJ	1 U	1 U[1]
MW1-41	6/20/2001	0.1 J	0.12 U	0.12 U	0.4 J	0.14 U	0.11 U	0.12 U	0.12 U	0.4 J
MW1-41	6/20/2001	0.091 U	0.12 U	0.12 U	0.41 J	0.14 U	0.11 U	0.12 U	0.12 U	0.42 J
MW1-41	7/30/2001	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	**0.6 J**
MW1-41	10/29/2001	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	**0.5 J**
MW1-41	4/30/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-41	6/19/2002	0.091 U	0.12 U	0.12 U	0.41 J	0.14 U	0.11 U	0.12 U	0.12 U	0.43 J
MW1-41	7/23/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-41	10/24/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-41	4/30/2003	0.091 U	0.12 U	0.12 U	0.43 U	0.14 U	0.11 U	0.12 U	0.12 U	0.43 U
MW1-41	10/15/2003	0.091 U	0.12 U	0.12 U	0.37 J	0.14 U	0.11 U	0.12 U	0.12 U	0.28 J
MW1-41	4/22/2004	0.091 U	0.12 U	0.12 U	0.3 J	0.14 U	0.11 U	0.12 U	0.12 U	0.3 J
MW1-41	10/13/2004	0.1 J	0.12 U	0.12 U	0.41 J	0.15 U	0.11 U	0.12 U	0.12 U	0.35 J
MW1-41	4/12/2005	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.3
MW1-41	10/12/2005	0.2 U	0.2 U	0.2 U	0.5	0.2 U	0.2 U	0.2 U	0.2 U	0.3
MW1-41	7/10/2006	0.5 U	0.5 U	0.2 U	0.26 J	0.5 U	0.5 U	0.5 U	0.5 U	0.23
MW1-41	10/16/2006	0.5 U	0.5 U	0.3 U	0.34 J	0.5 U	0.5 U	0.5 U	0.5 U	0.22
MW1-41	6/13/2007	0.5 U	0.5 U	0.2 U	0.25 J	0.5 U	0.5 U	0.5 U	0.5 U	0.21
MW1-41	10/18/2007	0.5 U	0.5 U	0.2 U	0.31 J	0.5 U	0.5 U	0.5 U	0.5 U	0.18 J
MW1-41	5/8/2008	0.5 U	0.5 U	0.2 U	0.27 J	0.11 J	0.5 U	0.5 U	0.5 U	0.19 J
MW1-41	10/28/2008	0.08 J	0.5 U	0.5 U	0.32 J	0.12 J	0.5 U	0.5 U	0.5 U	0.16 J

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
MW1-41	6/19/2009	0.5 U	0.5 U	0.2 U	0.26 J	0.07 J	0.5 U	0.5 U	0.5 U	0.2
MW1-41	10/27/2009	0.5 U	0.5 U	0.5 U	0.28 J	0.1 J	0.5 U	0.5 U	0.5 U	0.17 J
MW1-41	6/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 J
MW1-41	10/25/2010	0.5 U	0.5 U	0.5 U	0.29 J	0.5 U	0.5 U	0.5 U	0.5 U	0.18 J
MW1-41	7/18/2011	0.5 U	0.5 U	0.5 U	0.26 J	0.08 J	0.5 U	0.5 U	0.5 U	0.16 J
MW1-41	10/25/2011	0.5 U	0.5 U	0.5 U	0.23 J	0.09 J	0.5 U	0.5 U	0.5 U	0.12 J
MW1-41	6/19/2019	0.04 J	0.2 U	0.2 U	0.16 J	0.2 U	0.2 U	0.2 U	0.2 U	0.12
South Plantation – Shallow Groundwater Wells										
MW1-04	8/23/1995	1 U	1 U	**7.7**	**6,400 J**	80 J	2.2	1 U	**11,000 J**	**2,000 J**
MW1-04	12/5/1995	1 U	1 U	**5.2**	**3,900 J**	500 U[1]	1.7	1 U	**8,600 J**	**2,800 J**
MW1-04	3/5/1996	0.67 J	0.5 UJ	**5.6 J**	**3,500 J**	56 J	0.96 J	0.5 UJ	**6,300 J**	**1,100 J**
MW1-04	6/20/1996	0.64	0.5 U	**13**	**5,900 J**	41	4	0.5 U	**22,000 J**	**970 J**
MW1-04	3/3/1998	0.5 U	0.5 U	**16**	**13,000 J**	**140 J**	3.8	0.5 U	**22,000 J**	**1,900 J**
MW1-04	6/14/1999	2 J	3 U	**24**	**12,000 J**	**140**	4	3 U	**26,000**	**1,800**
MW1-04	10/21/1999	0.8	0.5 U	**10**	**5,300**	70	0.7	0.5 U	**3,600**	**1,100**
MW1-04	4/26/2000	1.4	0.5 U	**16**	**8,500 J**	**100 J**	2.9	0.5 U	**19,000 J**	**1,300 J**
MW1-04	6/7/2000	0.3 J	0.5 U	**6.2**	**15,000 J**	**100 J**	1.3	0.5 U	**38,000**	**1,300**
MW1-04	7/25/2000	250 U	250 U[1]	250 U[1]	**8,500 J**	250 U[1]	250 U[1]	250 U[1]	**18,000 J**	**860 J**
MW1-04	11/9/2000	1 U	1 U	**0.9 J**	**660**	12	1 U	1 U	**490**	**190**
MW1-04	4/27/2001	1 U	1 UJ	**6.6**	**3,700 J**	74 J	0.8 J	1 UJ	**3,900 J**	**700 J**
MW1-04	6/20/2001	4.6 U	5.7 U[1]	**18 J**	**12,000 J**	**110 J**	5.5 U[1]	5.6 U	**13,000 J**	**1,700 J**
MW1-04	7/31/2001	1 U	1 U	**2.9**	**2,200 J**	95 J	0.6 J	1 U	**2,700 J**	**400 J**
MW1-04	10/30/2001	1 U	1 U	**0.5 J**	**270 J**	3	1 U	1 U	**170**	**49**
MW1-04	5/1/2002	2.5 U	2.5 U	2.5 U[1]	**600 J**	3.7 J	2.5 U	2.5 U	**730 J**	**54 J**
MW1-04	6/17/2002	9.1 U	12 U[1]	**30 J**	**15,000 J**	**100 J**	11 U[1]	12 U	**42,000 J**	**970 J**
MW1-04	7/25/2002	1 U	1 U	**1.1 J**	**600 J**	2.7 J	1 U	1 U	**580 J**	**95 J**
MW1-04	10/25/2002	0.5 U	0.5 U	**0.8**	**430 J**	3.9	0.5 U	0.5 U	**490 J**	**36 J**
MW1-04	4/29/2003	4.6 U	5.7 U[1]	16 U[1]	**7,000 J**	53 J	5.5 U[1]	5.7 U	**11,000 J**	**1,100 J**
MW1-04	10/15/2003	2.3 U	2.9 U	**9 J**	**4,000 J**	50 J	2.8 U	2.9 U	**2,500 J**	**1,800 J**
MW1-04	4/21/2004	9.1 U	12 U[1]	**18 J**	**8,100 J**	71 J	11 U[1]	12 U	**20,000 J**	**460 J**
MW1-04	10/14/2004	1.2	0.12 U	**28**	**15,000 J**	94 J	3.8	0.12 U	**22,000 J**	**770 J**
MW1-04	4/13/2005	0.2 U	0.2 U	200 U[1]	**10,000**	200 U[1]	2.3	0.2 U	**16,000**	**800**
MW1-04	10/13/2005	0.2 U	0.2 U	**13**	**8,600**	100 U[1]	1.5	0.2 U	**7,800**	**1,900**
MW1-04	7/12/2006	50 U	50 U[1]	**16 JD**	**6,300 D**	53 D	50 U[1]	50 U	**14,000 D**	**540 D**
MW1-04	10/17/2006	0.23 J	0.5 U	**17**	**11,000 D**	77 D	0.63	0.5 U	**3000 D**	**4500 D**
MW1-04	6/14/2007	100 U	100 U[1]	100 U[1]	**11,000 D**	72 JD	100 U[1]	100 U	**24,000 D**	**850 D**
MW1-04	10/17/2007	10 U	10 U[1]	**5 D**	**3,400 D**	23 D	10 U[1]	10 U	**3,100 D**	**240 D**
MW1-04	5/7/2008	50 U	50 U[1]	**18 JD**	**7,500 D**	73 D	50 U[1]	50 U	**24,000 D**	**410 D**
MW1-04	10/28/2008	13 U	13 U[1]	**4.5 JD**	**3,400 D**	23 D	13 U[1]	13 U	**6,600 D**	**180 D**
MW1-04	6/25/2009	50 U	50 U[1]	**23 D**	**12,000 D**	93 D	50 U[1]	50 U	**30,000 JD**	**510 D**
MW1-04	10/27/2009	5 U	5 U	**3.4 JD**	**1,600 D**	10 D	5 U	5 U	**2,000 D**	**100 D**
MW1-04	6/16/2010	50 U	50 U[1]	**25 JD**	**17,000 D**	**170 D**	50 U[1]	50 U	**32,000 D**	**960 D**
MW1-04	10/25/2010	10 U	10 U[1]	**4.2 JD**	**2,700 D**	21 D	10 U[1]	10 U	**5,400 D**	**130 D**
MW1-04	7/18/2011	50 U[1/]	0.5 U	**17 JD**	**1,100 D**	95 D	50 U1/	50 U	**22,000 D**	**440 D**
MW1-04	10/25/2011	2.5 U	2.5 U	**1.6 JD**	**840 D**	6.3 D	2.5 U	2.5 U	**380 D**	**56 D**
MW1-04	6/12/2012	25 U	25 U[1]	**7 JD**	**7,000 D**	46 D	25 U[1]	25 U	**16,000 D**	**130 D**
MW1-04	6/17/2013	25 U	25 U[1]	**8.5 JD**	**7,700 D**	46 D	25 U[1]	25 U	**15,000 D**	**130 D**

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
MW1-04	6/17/2014	10 U	10 U[1]	**4.2 JD**	**3,500 D**	27 D	10 U[1]	10 U	**6,100 D**	**110 D**
MW1-04	6/24/2015	2.5 U	2.5 U	**2.9 D**	**1,800 D**	16 D	2.5 U	2.5 U	**1,600 D**	**96 D**
MW1-04	6/23/2016	2.5 U	2.5 U	**2.9 D**	**1,800 D**	14 D	2.5 U	2.5 U	**1,700 D**	**85 D**
MW1-04	6/19/2017	10 U	10 U[1]	**6.6 J D**	**5600 D**	56 D	10 U[1]	10 U	**11000 D**	**240 D**
MW1-04	6/19/2019	0.2 U	0.2 U	**1.3**	**580 D**	7.3	0.5 U	0.2 U	**680 D**	**34**
MW1-05	8/23/1995	5.8 J	1 U	1 U[1]	17	1.3	1 U	1 U	1.9	**140 J**
MW1-05	12/5/1995	110 J	1 U	1 U[1]	**74 J**	16	1 U	1 U	**7.3**	**4,300 J**
MW1-05	3/6/1996	34	0.5 U	0.5 U	60	7	0.5 U	0.5 U	3	**1,100**
MW1-05	6/20/1996	29 J	0.5 U	0.24 J	**93 J**	6.5	0.5 U	0.5 U	1.7	**1,500 J**
MW1-05	3/4/1998	67 J	0.26 J	0.5 U	8.9	7.2	0.5 U	0.5 U	1.6	**1,000 J**
MW1-05	6/14/1999	9	3 U	3 U[1]	9	2 J	3 U	3 U	2 J	**290**
MW1-05	10/21/1999	9.6	0.5 U	0.5 U	0.5	0.5	0.5 U	0.5 U	0.5 U	**18**
MW1-05	4/25/2000	1.1	0.5 U	0.5 U	1.2	0.5 U	0.5 U	0.5 U	0.5 U	**30**
MW1-05	6/7/2000	6.9	0.5 U	0.5 U	1.8	0.64	0.5 U	0.5 U	1.6	**22**
MW1-05	7/25/2000	1.8	0.5 U	0.5 U	3.4	0.5 U	0.5 U	0.5 U	0.5 U	**31**
MW1-05	11/6/2000	1.7	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	**7**
MW1-05	4/26/2001	1 U	1 UJ	1 U[1]	1 U	1 U	1 U	1 UJ	1 U	**24**
MW1-05	6/20/2001	1.5	0.12 U	0.12 U	0.46 J	0.28 J	0.11 U	0.12 U	0.46 J	**32**
MW1-05	7/31/2001	0.5 J	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	**13**
MW1-05	10/30/2001	1.7	1 U	1 U[1]	0.5 J	1 U	1 U	1 U	1 U	**3.5**
MW1-05	5/1/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**1.7**
MW1-05	6/17/2002	0.93	0.12 U	0.12 U	0.74	0.16 J	0.11 U	0.12 U	0.85	**11**
MW1-05	7/24/2002	0.65	0.5 U	0.5 U	0.63 J	0.5 U	0.5 U	0.5 U	0.66	**2.5**
MW1-05	10/25/2002	15	0.5 U	0.5 U	0.82	0.5 U	0.5 U	0.5 U	0.8	**5.6**
MW1-05	4/29/2003	0.32 U	0.12 U	0.12 U	0.3 U	0.14 U	0.11 U	0.12 U	0.33 U	**5.6**
MW1-05	10/15/2003	2	0.12 U	0.12 U	0.41 J	0.22 J	0.11 U	0.12 U	0.24 J	**3.1**
MW1-05	4/22/2004	0.24 J	0.12 U	0.12 U	0.27 J	0.14 U	0.11 U	0.12 U	0.24 J	**0.83**
MW1-05	10/14/2004	1.4	0.12 U	0.12 U	0.56	0.31 J	0.11 U	0.12 U	0.55	**2**
MW1-05	4/13/2005	0.2 U	0.2 U	0.2 U	2	0.2 U	0.2 U	0.2 U	**10**	**0.9**
MW1-05	10/12/2005	3	0.2 U	0.2 U	0.7	0.2 U	0.2 U	0.2 U	0.5	**5.9**
MW1-05	7/12/2006	0.48 J	0.5 U	0.2 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	**0.91**
MW1-05	10/16/2006	6.8	0.5 U	0.3 U	0.9	0.4 J	0.5 U	0.5 U	0.65	**11**
MW1-05	6/14/2007	0.44 J	0.5 U	0.5 U	0.27 J	0.5 U	0.5 U	0.5 U	0.27 J	**0.7**
MW1-05	10/17/2007	2.1	0.5 U	0.2 U	0.55	0.17 J	0.5 U	0.5 U	0.34 J	**4**
MW1-05	5/12/2008	0.16 J	0.5 U	0.2 U	0.26 J	0.1 J	0.5 U	0.5 U	0.27 J	0.42
MW1-05	10/29/2008	1.4	0.5 U	0.5 U	0.54	0.24 J	0.5 U	0.5 U	0.39 J	**2.2**
MW1-05	6/26/2009	3.4	0.5 U	0.2 U	0.51	0.59	0.5 U	0.5 U	0.47 J	**6.6**
MW1-05	10/27/2009	0.97	0.5 U	0.5 U	0.44 J	0.23 J	0.5 U	0.5 U	0.44 J	**1.9**
MW1-05	6/16/2010	2.6	0.5 U	0.5 U	0.62	0.55	0.5 U	0.5 U	0.52	**8.1**
MW1-05	10/25/2010	0.37 J	0.5 U	0.5 U	0.35 J	0.5 U	0.5 U	0.5 U	0.32 J	**0.74**
MW1-05	7/18/2011	1.9	0.5 U	0.5 U	0.6	0.47 J	0.5 U	0.5 U	0.42 J	**9.4**
MW1-05	10/26/2011	1.4	0.5 U	0.5 U	0.46 J	0.16 J	0.5 U	0.5 U	0.4 J	**3.6**
MW1-05	6/12/2012	0.25 J	0.5 U	0.5 UJ	0.24 J	0.1 J	0.5 U	0.5 U	0.27 J	**2.2**
MW1-05	6/17/2013	0.1 J	0.5 U	0.5 U	0.19 J	0.5 U	0.5 U	0.5 U	0.16 J	0.31 J
MW1-05	6/17/2014	0.78	0.5 U	0.5 U	0.85	0.2 J	0.5 U	0.5 U	0.24 J	**17**
MW1-05	6/24/2015	0.6	0.5 U	0.5 U	0.53	0.08 J	0.5 U	0.5 U	0.29 J	**7.7 J**
MW1-05	6/22/2016	4	0.5 U	0.11 J	5.5	1.2	0.5 U	0.5 U	0.46 J	**64**
MW1-05	6/19/2017	2.7	0.5 U	0.09 J	5.7	1.1	0.5 U	0.5 U	0.58	**53**

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
MW1-16	8/31/1995	**12,000 J**	**15 J**	**680 J**	**14,000 J**	**520 J**	0.51 J	**5,600 J**	**250 J**	**12,000 J**
MW1-16	6/20/1996	**30,000 J**	**35 J**	**180 J**	**3,100 J**	**180 J**	1.3 J	**430 J**	**34 J**	**2,200 J**
MW1-16	3/4/1998	**24,000 J**	**24 J**	**110 J**	**18,000 J**	**180 J**	1.5	**840 J**	**4,000 J**	**3,900 J**
MW1-16	6/14/1999	**15,000 J**	**17**	**48**	**6,900**	**160**	1 J	140	**550**	**4,100**
MW1-16	10/21/1999	**6,500**	**9**	**5**	28	26	1.2	23	**9.2**	**28**
MW1-16	4/26/2000	**1,700 J**	0.5 UJ	0.5 UJ	**70 J**	7.4 J	0.69 J	16 J	3.3 J	**4.3 J**
MW1-16	6/7/2000	**2,500**	2.7	**2 J**	13	13	1 J	29	**20**	**6.6**
MW1-16	7/25/2000	**2,300 J**	50 U[1]	50 U[1]	50 U	50 U	50 U[1]	50 U	50 U[1]	50 U[1]
MW1-16	11/6/2000	**3,900**	4.2	**1.3**	12	16	1 U	21 J	4.1	1 U[1]
MW1-16	4/27/2001	**1,100 J**	1.6 J	1 U[1]	2.4	7.5	0.4 J	7.2 J	2.2	**19**
MW1-16	6/20/2001	**2,900 J**	**7 J**	**23 J**	**9,300 J**	98 J	5.5 U[1]	28 J	**370 J**	**1,400 J**
MW1-16	7/31/2001	**1,900 J**	1.9	**2.2**	60	12	1 U	15	**8.3**	**68 J**
MW1-16	10/30/2001	**3,400 J**	4.1	**2.1**	13	17	1 U	13	3.5	**11**
MW1-16	5/1/2002	**1,200 J**	2.5 U	2.5 U[1]	3.9 J	7.9 J	2.5 U	5.6 J	2.5 U	**2.7 J**
MW1-16	6/17/2002	**10,000 J**	12 U[1]	**42 J**	**24,000 J**	**240 J**	11 U[1]	38 J	**150 J**	**3,000 J**
MW1-16	7/24/2002	**3,200 J**	5 U	5 U[1]	**340 J**	17 J	5 U	10 J	**5.5 J**	**86 J**
MW1-16	10/25/2002	**9,000 J**	25 U[1]	25 U[1]	**190 J**	38 J	25 U[1]	25 U	25 U[1]	**80 J**
MW1-16	4/29/2003	330 J	0.41 U	0.37 U	1.6	3.9	0.31 U	0.52	1.3	**2.1**
MW1-16	10/15/2003	**1,700 J**	1.2 U	1.2 U[1]	6.2 J	13 J	1.1 U	5.3 J	2.4 J	**5.5 J**
MW1-16	4/21/2004	160 J	0.21 J	0.24 J	1.8	3	0.13 J	0.2 J	1	**1.7**
MW1-16	10/13/2004	**4,200 J**	3.7	**1.1**	11	23	0.42 J	10	4.5	**9.3**
MW1-16	4/13/2005	88	0.2 U	0.2 U	1.2	2.8	0.2 U	0.2 U	0.6	**0.6**
MW1-16	10/13/2005	220	0.2 J	0.2 J	13 J	7 J	0.2 U	0.2 U	2 J	**5.9 J**
MW1-16	7/14/2006	240 D	1 U	0.4 D	3.3 D	3.2 D	1 U	1 U	1.2 D	**2.8 D**
MW1-16	10/17/2006	**1,000 D**	0.47 J	**0.63**	**440 D**	26	0.13 J	0.23 J	2.6	**290 D**
MW1-16	6/14/2007	40	0.5 U	0.13 J	1.6	2.2	0.5 U	0.5 U	0.7	**0.89**
MW1-16	10/17/2007	98 D	2.5 U	1 U	6.5 D	6.1 D	2.5 U	2.5 U	1.8 JD	**2.5 D**
MW1-16	5/12/2008	17	0.5 U	0.14 J	1.1	1.9	0.5 U	0.5 U	0.65	**0.68**
MW1-16	10/29/2008	68 D	0.14 JD	0.2 JD	12 D	6.7 D	1 U	1 U	1 D	**6.3 D**
MW1-16	6/25/2009	37	0.5 U	0.23	29	2.6	0.5 U	0.08 J	3.1	**11**
MW1-16	10/27/2009	68 D	1 U	0.4 JD	35 D	4.2 D	1 U	1 U	3.2 D	**13 D**
MW1-16	6/16/2010	92 D	0.5 U	0.5 U	0.95	2.8	0.5 U	0.2 J	0.57	0.47 J
MW1-16	10/25/2010	52	0.5 U	0.08 J	8.1	2.2	0.5 U	0.5 U	0.43 J	**4**
MW1-16	7/18/2011	5.3	0.5 U	0.1 J	1.6	1.1	0.5 U	0.5 U	0.39 J	**0.72**
MW1-16	10/25/2011	**1,500** D	1.3 JD	**1.2** JD	**1,300** D	34 D	2.5 U	0.85 JD	1.4 JD	**360** D
MW1-16	6/12/2012	28	0.5 U	0.5 UJ	1.3	0.65	0.5 U	0.5 U	0.21 J	0.26 J
MW1-16	6/17/2013	15	0.5 U	0.15 J	14	1.8	O.5 U	0.5 U	0.32 J	**4.8**
MW1-16	6/17/2014	2.5	0.5 U	0.5 U	0.63	0.39 J	0.5 UJ	0.5 U	0.11 J	0.29 J
MW1-16	6/24/2015	5.2	0.5 U	0.5 U	1.1	0.93	0.5 U	0.5 U	0.31 J	**0.54 J**
MW1-16	6/22/2016	4.4	0.5 U	0.5 U	2	1.3	0.5 U	0.5 U	0.16 J	**1.5**
MW1-16	6/19/2017	2	0.5 U	0.5 U	0.69	0.41 J	0.5 U	0.5 U	0.5 U	**0.54**
MW1-20	8/30/1995	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-20	12/8/1995	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-20	3/11/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	6/27/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	10/21/1999	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	4/26/2000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
MW1-20	7/25/2000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	10/31/2000	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-20	7/31/2001	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-20	10/30/2001	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-20	5/1/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	7/25/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	10/25/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	4/29/2003	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
MW1-20	10/14/2003	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
MW1-20	4/21/2004	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
MW1-20	10/13/2004	0.091 U	0.12 U	0.12 U	0.12 U	0.15 U	0.11 U	0.12 U	0.12 U	0.22 U
MW1-20	4/13/2005	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
MW1-20	10/12/2005	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
MW1-20	7/12/2006	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-20	10/16/2006	0.5 U	0.5 U	0.3 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.05 J
MW1-20	6/13/2007	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-20	10/19/2007	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-20	5/7/2008	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-20	10/28/2008	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-20	6/24/2009	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-20	10/27/2009	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	6/15/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	10/25/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	7/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	10/25/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	6/12/2012	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	6/17/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	6/17/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	6/24/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
MW1-20	6/22/2016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-20	6/19/2017	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Central Landfill – Shallow Groundwater Well										
MW1-17	8/29/1995	1 U	1 U	1 U[1]	6.4	0.94 J	1 U	1 U	1 U	**6.9**
MW1-17	12/4/1995	1 U	1 U	1 U[1]	5.1	1 U	1 U	1 U	1 U	**4.3**
MW1-17	3/6/1996	0.5 U	0.5 U	0.5 U	0.32 J	0.29 J	0.5 U	0.5 U	0.5 U	0.47 J
MW1-17	6/24/1996	0.5 U	0.2 J	0.5 U	1.4 U	0.51	0.4 J	0.5 U	0.5 U	1.2 U[1]
MW1-17	6/7/2000	0.1 J	0.5 U	0.5 U	0.5 U	0.64	0.5 U	0.5 U	0.3 J	0.5 U
MW1-17	6/20/2001	0.12 J	0.12 U	0.12 U	0.12 U	0.71	0.11 U	0.12 U	0.12 U	0.22 U
MW1-17	6/19/2002	0.11 J	0.12 U	0.12 U	0.12 U	0.43 J	0.11 U	0.12 U	0.12 U	**0.66**
MW1-17	4/29/2003	0.091 U	0.12 U	0.12 U	0.18 U	0.39 U	0.11 U	0.12 U	0.12 U	**1.4**
MW1-17	4/22/2004	0.091 U	0.12 U	0.12 U	3.4	0.31 J	0.11 U	0.12 U	0.89	**3.8**
MW1-17	4/14/2005	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
MW1-17	7/10/2006	0.5 UJ	0.5 UJ	0.25 J	50 J	0.23 J	0.5 UJ	0.5 UJ	0.5 UJ	**14 J**
MW1-17	6/14/2007	0.5 U	0.5 U	0.31 J	**76 D**	0.5 U	0.5 U	0.5 U	0.5 U	**14**
MW1-17	5/7/2008	0.5 U	0.5 U	0.19 J	33	0.14 J	0.5 U	0.5 U	0.5 U	**5.9**
MW1-17	6/18/2009	0.5 U	0.5 U	0.43	**100 D**	0.22 J	0.5 U	0.5 U	0.13 J	**18**
MW1-17	6/15/2010	0.5 U	0.5 U	0.42 J	61 D	0.16 J	0.5 U	0.5 U	0.5 U	**15**
MW1-17	7/18/2011	0.5 U	0.5 U	0.42 J	**90** D	0.18 J	0.5 U	0.5 U	0.5 U	**15**

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
MW1-17	6/12/2012	0.5 U	0.5 U	**1.4** J	**360 D**	0.34 J	0.5 U	0.5 U	0.2 J	**40**
MW1-17	6/17/2013	0.5 U	0.5 U	**1.9**	**430 D**	0.55	0.5 U	0.5 U	0.46 J	**89 D**
MW1-17	6/18/2014	0.5 U	0.5 U	**1.5**	**360 D**	0.31 J	0.5 U	0.5 U	0.5 U	**62**
MW1-17	6/24/2015	1 U	1 U	**2.1 D**	**630 D**	0.46 JD	1 U	1 U	1 U	**120 JD**
MW1-17	6/21/2016	0.5 U	0.5 U	**1.6**	**440 D**	0.45 J	0.5 U	0.5 U	0.5 U	**100 D**
MW1-17	6/19/2017	0.5 U	0.5 U	**1.2**	**440 D**	0.39 J	0.5 U	0.5 U	0.5 U	**72**
Deeper Groundwater Wells										
MW1-09	8/21/1995	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-09	12/5/1995	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
MW1-09	3/5/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-09	6/7/2000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 J	0.5 U
MW1-09	6/17/2002	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U
MW1-09	4/23/2004	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.2 U
MW1-09	7/13/2006	0.5 UJ	0.5 UJ	0.2 UJ	0.17 J	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.2 UJ
MW1-09	5/12/2008	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-09	6/16/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-09	6/14/2012	0.5 U	0.5 U	0.5 UJ	0.14 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-09	6/24/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-09	6/22/2016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-09	6/27/2019	0.2 UM	0.2 UM	0.2 U	0.2 UM	0.2 UM	0.2 UM	0.2 UM	0.2 UM	0.02 UM
MW1-25	8/17/1995	4.8	1 U	**7.3**	440 R	35 R	1 U	1 U	98 R	340 R
MW1-25	12/6/1995	3.9	1 U	**6.1**	630 R	38 R	1 U	1 U	74 R	230 R
MW1-25	3/11/1996	0.5 U	0.5 U	**1.1**	**260**	6.3	0.5 U	0.5 U	**11**	**44**
MW1-25	6/25/1996	0.5 U	0.5 U	**4.7 J**	630 R	45 R	0.5 U	0.5 U	74 R	240 R
MW1-25	6/8/2000	6.9	0.3 J	**7.2**	**2,000**	41	0.5 U	0.5 U	**39**	**260**
MW1-25	8/6/2002	8.6 J	10 U[1]	**7.6 J**	**2,000 D**	41 D	10 U[1]	10 U	**20 D**	**240 D**
MW1-25	6/19/2003	67 U	NA	**67 U**	**1,800**	34	67 U[1]	67 U	**14**	**210**
MW1-25	4/22/2004	5.9 D	2.5 U	**6.6 D**	**1,600 D**	33 D	2.5 U	2.5 U	**7.5 D**	**170 D**
MW1-25	7/13/2006	6 D	5 U	**7.3 D**	**1700 D**	37 D	5 U	5 U	4.3 JD	**270 D**
MW1-25	5/8/2008	4.5 D	2.5 U	**4.8 D**	**1200 JD**	28 D	2.5 U	2.5 U	1.3 JD	**210 D**
MW1-25	6/16/2010	4.2 D	2.5 U	**5.1 D**	**1,400 D**	28 D	2.5 U	2.5 U	1.9 JD	**180 D**
MW1-25	6/23/2014	4.9 D	2.5 U	**5.7 D**	**1,300 D**	27 D	2.5 UJ	2.5 U	0.95 JD	**220 D**
MW1-25	6/20/2019	3.6	0.19 U	**2.9**	**1,100 D**	20	0.5 UM	0.2 U	0.43	**270 D**
MW1-28	12/7/1995	1.1	1 U	**5.1**	720 R	58 R	1 U	1 U	2.3	420 R
MW1-28	3/8/1996	2.1	0.5 U	**5**	**320**	78	0.5 U	0.5 U	1.6	**480**
MW1-28	6/25/1996	2.4 J	0.5 U	**6.3**	540 R	78 R	0.5 U	0.5 U	2.2 J	480 R
MW1-28	9/9/1996	2.3	0.5 U	**5.4**	510 R	66 R	0.5 U	0.5 U	1.2	540 R
MW1-28	6/7/2000	3.2	0.5 U	**5.1**	**1,300 J**	74	0.5 U	0.5 U	0.81	**520**
MW1-28	8/6/2002	4.6 J	10 U[1]	**5.4 J**	**1,500 D**	84 D	10 U[1]	10 U	10 U[1]	**600 D**
MW1-28	6/19/2003	50 U	NA	50 U[1]	**1,200**	34	50 U[1]	50 U	50 U[1]	**470**
MW1-28	4/22/2004	3.9	0.5 U	**5.3**	**1,300 D**	71 D	0.5 U	0.5 U	0.52	**540 D**
MW1-28	7/13/2006	6.1 D	5 U	**7.2 D**	**1500 D**	94 D	5 U	5 U	1.6 JD	**710 D**
MW1-28	5/8/2008	6.1 D	2.5 U	**5.7 D**	**1400 D**	78 D	2.5 U	2.5 U	0.9 JD	**650 D**
MW1-28	6/17/2010	6.3 D	2.5 U	**6.1 D**	**1,700 D**	91 D	2.5 U	2.5 U	0.7 JD	**540 D**
MW1-28	6/24/2014	6.2 D	2.5 U	**5.9 D**	**1,600 D**	94 D	2.5 UJ	2.5 U	0.75 JD	**560 D**
MW1-28	6/24/2019	5.6	0.12 J	**5.1**	**1,500 D**	74 D	0.5 U	0.2 U	0.2 U	**590 D**
MW1-29	6/27/2019	0.2 UM	0.2 U	0.2 UM	0.2 UM	0.2 UM	0.5 UM	0.2 UM	0.2 UM	0.02 UJ
MW1-38	6/19/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
MW1-38	6/27/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-38	9/10/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-38	4/23/2004	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-38	7/13/2006	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-38	5/12/2008	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MW1-38	6/17/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-38	6/13/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-38	6/24/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
MW1-38	6/22/2016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MW1-38	6/19/2019	0.2 UM	0.2 U	0.2 UM	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.022 M
MW1-39	6/17/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.8**
MW1-39	6/27/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1 U[1]
MW1-39	9/10/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	**0.76**
MW1-39	6/8/2000	0.5 U	0.5 U	0.5 U	0.4 J	0.5 U	0.5 U	0.5 U	0.5 U	**2**
MW1-39	8/6/2002	0.5 U	0.5 U	0.5 U	0.32 J	0.5 U	0.5 U	0.5 U	0.5 U	**1.8**
MW1-39	6/19/2003	1 U	NA	1 U[1]	0.56	1 U	1 U	1 U	1 U	**1.3**
MW1-39	4/23/2004	0.5 U	0.5 U	0.5 U	0.33 J	0.5 U	0.5 U	0.5 U	0.5 U	**2**
MW1-39	7/13/2006	0.5 U	0.5 U	0.2 U	0.45 J	0.5 U	0.5 U	0.5 U	0.5 U	**2.7**
MW1-39	5/12/2008	0.5 U	0.5 U	0.2 U	0.43 J	0.5 U	0.5 U	0.5 U	0.5 U	**2.3**
MW1-39	6/17/2010	0.5 U	0.5 U	0.5 U	0.6	0.5 U	0.5 U	0.5 U	0.5 U	0.09 J
MW1-39	6/13/2012	0.5 U	0.5 U	0.5 U	0.9	0.5 U	0.5 U	0.5 U	0.5 U	**2**
MW1-39	6/24/2014	0.5 U	0.5 U	0.5 U	0.94	0.5 U	0.5 UJ	0.5 U	0.5 U	**2.1**
MW1-39	6/22/2016	0.5 U	0.5 U	0.5 U	0.93	0.5 U	0.5 U	0.5 U	0.5 U	**1.8**
MW1-39	6/17/2019	0.2 UM	0.2 UM	0.2 U	0.65	0.2 UM	0.2 U	0.2 U	0.2 UM	**1.6**
MW1-60	9/18/2018	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Regional Aquifer Domestic Water-Supply Wells										
Navy #5	12/8/1995	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
Navy #5	3/3/1998	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Navy #5	6/2/1999	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Navy #5	6/7/2000	0.5 U	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Navy #5	6/19/2001	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
Navy #5	6/27/2002	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
Navy #5	4/30/2003	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
Navy #5	4/23/2004	0.091 U	0.12 U	0.12 U	0.14 J	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
Navy #5	6/16/2004	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
Navy #5	4/14/2005	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Navy #5	7/14/2006	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
Navy #5	6/15/2007	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Navy #5	5/9/2008	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
Navy #5	6/18/2009	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
Navy #5	6/16/2010	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Navy #5	7/18/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Navy #5	6/13/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Navy #5	6/19/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
Navy #5	6/24/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
Navy #5	6/24/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
Navy #5	6/23/2016	0.5 U	0.5 U	0.5 U	0.07 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Navy #5	6/21/2017	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Table C-1. OU 1 Chlorinated VOC Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
GW Remediation Goals		800	5	0.5	70	100	5	200	5	0.5
Navy #5	6/11/2017	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.02 UJQ
PUD	12/8/1995	1 U	1 U	1 U[1]	1 U	1 U	1 U	1 U	1 U	1 U[1]
PUD	3/3/1998	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PUD	6/2/1999	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PUD	6/8/2000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PUD	6/19/2001	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
PUD	7/1/2002	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
PUD	4/30/2003	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
PUD	4/23/2004	0.091 U	0.12 U	0.12 U	0.12 U	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
PUD	4/14/2005	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
PUD	7/14/2006	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
PUD	6/14/2007	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PUD	5/9/2008	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
PUD	6/17/2009	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
PUD	6/16/2010	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PUD	7/19/2011	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PUD	6/13/2012	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PUD	6/19/2013	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U
PUD	6/25/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
PUD	6/25/2015	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
PUD	6/22/2016	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PUD	6/21/2017	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
PUD	6/10/2019	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.02 UJQ
Piezometers										
P1-01	6/11/2019	0.2 UM	0.2 U	0.2 U	0.077 JM	0.2 UM	0.5 U	0.2 U	0.2 U	0.02 UJ
P1-02	6/19/2019	0.2 U	0.2 U	0.2 UM	0.1 J	0.2 U	0.5 U	0.2 U	0.2 U	0.064
P1-03	6/27/2019	0.11 JM	0.2 U	0.2 UM	0.085 JM	0.2 UM	0.5 UM	0.2 U	0.2 UM	0.02 UM
P1-04	6/17/2019	0.31	0.2 UM	**1.5**	**480 D**	11	0.5 U	0.2 UM	0.28	**150 D**
P1-05	6/27/2019	0.16 JM	0.3	0.2 UM	0.13 JM	0.38	0.5 UM	0.2 U	0.2 UM	0.02 UM

Notes:

All concentrations are in µg/L.
GW denotes groundwater.
Bold indicates detected value is equal to or exceeds the groundwater remediation goal.
D – the reported result is from a dilution
DCA – dichloroethane
DCE – dichloroethene
J – estimated result
µg/L – micrograms per liter
M – manual integrated compound

Yellow and green highlight indicates samples collected during this FYR period.
NA – not analyzed
PCE – tetrachloroethene
Q – one or more quality control criteria failed
R – rejected result, quality control indicates the data are not usable
TCA – trichloroethane
TCE – trichloroethene
U – not detected at value shown
U[1] – not detected at value shown and value exceeds remediation goal
UJ – not detected at the estimated value shown

Table C-2. OU 1 1,4-Dioxane Groundwater Sampling Results through June 2019

Location ID	Sampling Date	1,4-Dioxane (μg/L)
Remediation Goal		NE (MTCA Method B = 0.44)
North Plantation – Shallow Groundwater Wells		
1MW-1	7/10/2006	**1.1**
1MW-1	6/11/2019	**0.56**
MW1-02	7/10/2006	**14**
MW1-02	9/19/2018	**5.9**
MW1-02	6/18/2019	**7.6**
MW1-03	7/12/2006	1 U
MW1-14	6/11/2019	0.28 M
MW1-41	7/10/2006	**8.5**
MW1-41	9/19/2018	**28**
MW1-41	6/19/2019	**5.1 J**
South Plantation – Shallow Groundwater Wells		
MW1-04	7/12/2006	1 U
MW1-04	6/19/2019	0.2 U
MW1-05	7/12/2006	1 U
MW1-16	7/14/2006	1 U
MW1-20	7/12/2006	1 U
Central Landfill – Shallow Groundwater Well		
MW1-17	7/10/2006	1
Deeper Groundwater Wells		
MW1-09	7/13/2006	1 U
MW1-09	6/14/2012	1 U
MW1-09	6/24/2014	1 U
MW1-09	6/22/2016	0.4 U
MW1-09	6/18/2019	0.2 U
MW1-25	7/13/2006	**29**
MW1-25	9/20/2018	**31**
MW1-25 [1/]	6/20/2019	**12**
MW1-25 [2/]	6/20/2019	**27 HDJ**
MW1-28	7/13/2006	**29**
MW1-28	9/19/2018	**7.4**
MW1-28	6/24/2019	**31 D**
MW1-29	6/17/2019	0.2 UM
MW1-38	7/13/2006	**4.1**
MW1-38	6/13/2012	**2.5**
MW1-38	6/24/2014	**2.3**
MW1-38	6/22/2016	**2.2**
MW1-38	6/19/2019	**1.7**
MW1-39	7/13/2006	**1.9**
MW1-39	6/13/2012	**1.2**
MW1-39	6/24/2014	**1.1**
MW1-39	6/22/2016	**0.85**
MW1-39	6/17/2019	0.42 M
Regional Aquifer Domestic Water-Supply Wells		
Navy #5	7/14/2006	1 U
Navy #5	6/24/2014	1 U
Navy #5	6/23/2016	0.4 U
Navy #5	6/10/2019	0.19 U
PUD	7/14/2006	1 U
PUD	6/25/2014	1 U
PUD	6/22/2016	0.4 U
PUD	6/11/2019	0.19 U
Piezometers		
P1-01	6/11/2019	0.26 M
P1-02	6/19/2019	**7.7**
P1-03	6/17/2019	**8.6**
P1-04	6/17/2019	**24 D**
P1-05	6/17/2019	**6.6 D**

Notes:

[1/] The MW1-25 samples were analyzed by two laboratories. The initial analysis was completed by Test America, West Sacramento, California. See Section 3.2 for an explanation.

[2/] The MW1-25 samples were analyzed by two laboratories. The second analysis was completed by Test America, Seattle, Washington. See Section 3.2 for an explanation.

All concentrations are in micrograms per liter (μg/L).

Bold indicates detected value is equal to or exceeds the MTCA Method B – carcinogen - cleanup level.

Yellow and green highlighting indicates samples collected during this FYR period.

D – result reported from a diluted analysis

DUP – field duplicate sample

H – sample was prepped or analyzed beyond the specified holding time

J – analyte positively identified, but result is estimated

J1 – the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria

M – manual integrated compound

MTCA – Model Toxics Control Act

NE – not established (MTCA Method B – carcinogen – cleanup level = 0.44 μg/L)

PUD – Public Utility District

U – not detected at value shown

Table C-3. OU 1 PCB Aroclors Groundwater Sampling Results for September 2018

Location ID	Sampling Date	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
GW Remediation	**Goal (µg/L)**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**0.044**
MW1-02	9/19/2018	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U
MW1-02 (DUP)	9/19/2018	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.010 U
MW1-14	9/19/2018	0.10 U	0.10 U	0.10 U	0.10 U	0.63 PDJ	0.20 PDJ	0.10 U	**0.83 PDJ**
P1-01	9/19/2018	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.02 UJ	0.020 UJ

Notes:

All concentrations are in micrograms per liter (µg/L).

Bold indicates detected concentration is equal to or exceeds MTCA Method B risk based cleanup level of 0.044 µg/L for total PCBs in groundwater.

D – the report results is from a diluted analysis

DUP – field duplicate sample

GW – groundwater

J – analyte positively identified, but result is estimated

NE – not established

P – the relative percent difference is greater than 40% between the results on the two analytical columns

PCBs – polychlorinated biphenyls

U – the analyte was not detected at or above the indicated practical quantitation limit

UJ – analyte not detected, but the reported quantitation/detection limit is estimated

Table C-4. OU 1 PCB Congeners Groundwater Sampling Results for September 2018

Congener	MW1-02	MW1-02 (DUP)	MW1-14	P1-01
PCB-1	1.5 J	7.2 J M	18,000 D	65 J M
PCB-2	0.44 J M	0.63 J q	1,200 J D	4.4 J
PCB-3	0.87 J M q	3 J M	8,600 D	6.4 J q
PCB-4	3.3 J M q	6.1 J M	15,000 D	36 J M
PCB-5	190 U	190 U	3,800 U M	190 U
PCB-6	190 U	190 U	43,000 D	180 J
PCB-7	190 U	190 U	1,900 J D	190 U
PCB-8	190 U	5.1 J M q	35,000 D M	15 J
PCB-9	190 U	190 U	2,600 J D	190 U
PCB-10	190 U	190 U	890 J D	190 U
PCB-11	190 U	190 U	1,500 J D	190 U
PCB-12/13	380 U	380 U	1,800 J D	380 U
PCB-14	190 U	190 U	3,800 U	4.2 J M q
PCB-15	190 U	190 U	13,000 D	190 U
PCB-16	190 U	1.7 J M q	10,000 D	5.9 J q
PCB-17	2 J q	3.2 J q	14,000 D	5.9 J
PCB-18/30	380 U	380 U	37,000 D	16 J
PCB-19	190 U	2.4 J q	2,700 J D	3 J q
PCB-20/28	5.4 J q	11 J	150,000 D	29 J
PCB-21/33	380 U	3.5 J q	52,000 D	13 J
PCB-22	1.4 J q	1.7 J	11,000 D	190 U
PCB-23	190 U	190 U	3,800 U	190 U
PCB-24	190 U	190 U	200 J D q	190 U
PCB-25	1.6 J q	4.7 J	73,000 D	47 J
PCB-26/29	1.4 J M q	18 J	460,000 D	340 J
PCB-27	190 U	190 U	2,400 J D	2.2 J q
PCB-31	190 U	10 J	210,000 D	43 J
PCB-32	1.8 J	4.1 J	36,000 D	11 J
PCB-34	190 U	190 U	4,200 D M q	4.4 J M
PCB-35	190 U	190 U	3,800 U	190 U
PCB-36	190 U	190 U	37,000 D M	190 U M
PCB-37	190 U	190 U	7,500 D M q	190 U
PCB-38	190 U	190 U	3,800 U	7.1 J
PCB-39	190 U	190 U	3,800 U	190 U
PCB-40/71	1.9 J q	11 J	530,000 D	380 U M
PCB-41	190 U	190 U	18,000 U	98 J M
PCB-42	2.3 J M q	7.5 J	270,000 D	35 J
PCB-43	190 U	190 U	16,000 U	190 U
PCB-44/47/65	570 U	73 J	2,200,000 D	260 J
PCB-45	190 U M	8 J M	27,000 D M	6.1 J M
PCB-46	190 U	190 U	24,000 D M	190 U
PCB-48	190 U	1.8 J M	52,000 D	190 U
PCB-49/69	380 U	39 J	1,500,000 D	190 J
PCB-50/53	0.89 J q	5.1 J	110,000 D	15 J
PCB-51	24 J M	19 J M	12,000 U	21 J M

Table C-4. OU 1 PCB Congeners Groundwater Sampling Results for September 2018

Congener	MW1-02	MW1-02 (DUP)	MW1-14	P1-01
PCB-52	190 U	140 J	5,700,000 E D J	620
PCB-54	0.46 J q	0.6 J q	250 J D	190 U
PCB-55	0.63 J M q	190 U	10,000 U	190 U
PCB-56	1 J q	4.1 J q	380,000 D	17 J
PCB-57	190 U	190 U	9,700 U	190 U
PCB-58	190 U	190 U M	150,000 D	190 U M
PCB-59/62/75	0.6 J M q	1.3 J	45,000 D	5.2 J
PCB-60	190 U	1.9 J	110,000 D	3.3 J
PCB-61/70/74/76	760 U	47 J	4,100,000 D	170 J
PCB-63	190 U	190 U	48,000 D	5.3 J q
PCB-64	190 U	9.7 J q	520,000 D	37 J
PCB-66	190 U	21 J M	1,400,000 D	71 J
PCB-67	190 U	190 U	9,000 U	190 U
PCB-68	2.8 J	4.9 J	14,000 D	6.6 J
PCB-72	190 U	0.68 J M q	35,000 D	6.4 J
PCB-73	190 U	190 U	9,600 U	190 U
PCB-77	19 U	19 U	16,000 D M	19 U
PCB-78	190 U	190 U	28,000 D M	4.1 J q
PCB-79	190 U	190 U	58,000 D M	8.8 J
PCB-80	190 U	190 U	33,000 D	190 U
PCB-81	19 U	19 U	13,000 U M	19 U
PCB-82	190 U	9.4 J	1,000,000 D	25 J
PCB-83	190 U M	11 J M	630,000 D M	29 J M
PCB-84	5.3 J	32 J	2,500,000 E D J	100 J
PCB-85/116/117	3.1 J q	13 J	1,400,000 D	34 J
PCB-86/87/97/108/119/125	9.4 J M q	49 J M	5,800,000 D M	150 J M
PCB-88/91	3.4 J	15 J	1,100,000 D	41 J
PCB-89	190 U	190 U	120,000 U	190 U
PCB-90/101/113	570 U	78 J	8,600,000 E D J	230 J
PCB-92	190 U	14 J q	1,600,000 D	58 J
PCB-93/100	380 U	380 U	100,000 U	380 U
PCB-94	190 U	190 U	110,000 U	190 U
PCB-95	190 U	97 J	7,000,000 E D J	320
PCB-96	190 U	190 U	37,000 D	3.7 J
PCB-98/102	380 U	380 U	170,000 D M	380 U
PCB-99	5.6 J M q	30 J M	4,000,000 E D M J	100 J M
PCB-103	190 U	190 U	94,000 U	190 U
PCB-104	190 U	190 U	260 J D	190 U
PCB-105	19 U	24	3,800,000 E D J	57
PCB-106	190 U	190 U	89,000 U	190 U
PCB-107/124	380 U	1.4 J M q	250,000 D	380 U
PCB-109	190 U	3.2 J M q	530,000 D M	15 J M
PCB-110/115	380 U	86 J	10,000,000 E D M J	300 J
PCB-111	190 U	190 U	83,000 U	190 U

Table C-4. OU 1 PCB Congeners Groundwater Sampling Results for September 2018

Congener	MW1-02	MW1-02 (DUP)	MW1-14	P1-01
PCB-112	190 U M	190 U M	85,000 U M	190 U M
PCB-114	19 U	19 U	240,000 D M	19 U
PCB-118	19 U	56	7,900,000 E D J	160
PCB-120	190 U	190 U	83,000 U	190 U
PCB-121	190 U	190 U	77,000 U	190 U
PCB-122	190 U	190 U	96,000 U	190 U
PCB-123	19 U	19 U	120,000 U	19 U M
PCB-126	19 U	19 U	120,000 U	19 U
PCB-127	190 U	190 U	92,000 U	190 U
PCB-128/166	380 U	11 J	1,300,000 D	26 J
PCB-129/138/163	570 U	53 J	7,700,000 E D J	120 J
PCB-130	0.97 J q	3.2 J	490,000 D	190 U
PCB-131	190 U	1.4 J	120,000 D	190 U
PCB-132	190 U	21 J	2,600,000 E D J	42 J
PCB-133	190 U	190 U	69,000 D	190 U
PCB-134/143	380 U	3.4 J q	420,000 D	380 U
PCB-135/151	380 U	13 J	1,400,000 D M	27 J q
PCB-136	2 J q	7.8 J	760,000 D	16 J
PCB-137	190 U M	2.2 J q	520,000 D	5.7 J q
PCB-139/140	380 U	1.1 J	170,000 D	380 U
PCB-141	190 U	6.2 J	980,000 D	14 J
PCB-142	190 U	190 U M	25,000 U	190 U
PCB-144	190 U	1.9 J	250,000 D	190 U
PCB-145	190 U	190 U	16,000 U	190 U
PCB-146	2 J q	5.9 J	730,000 D	14 J
PCB-147/149	380 U	35 J	4,500,000 E D J	81 J
PCB-148	190 U	190 U	22,000 U	190 U
PCB-150	190 U	190 U	15,000 U	190 U
PCB-152	190 U	190 U	15,000 U	190 U
PCB-153/168	380 U	31 J	4,400,000 E D J	69 J
PCB-154	190 U	190 U	54,000 D M	190 U
PCB-155	0.43 J q	190 U	14,000 U	190 U
PCB-156/157	38 U	10 J	1,300,000 D M	24 J
PCB-158	1.5 J	5.7 J q	830,000 D	13 J
PCB-159	190 U	190 U	10,000 D	190 U
PCB-160	190 U M	190 U M	16,000 U M	190 U M
PCB-161	190 U M	190 U M	17,000 U M	190 U M
PCB-162	190 U	190 U	30,000 D	190 U
PCB-164	190 U	3.3 J	400,000 D	11 J
PCB-165	190 U	190 U	17,000 U	190 U
PCB-167	19 U	2.3 J q	370,000 D	5.8 J
PCB-169	0.63 J q	1.3 J M	3,800 U	19 U
PCB-170	0.4 J q	4.3 J	610,000 D	14 J
PCB-171/173	380 U	0.97 J q	210,000 D	3.3 J q

Table C-4. OU 1 PCB Congeners Groundwater Sampling Results for September 2018

Congener	MW1-02	MW1-02 (DUP)	MW1-14	P1-01
PCB-172	190 U	0.61 J q	82,000 D	190 U
PCB-174	190 U	4 J	430,000 D	7.5 J
PCB-175	190 U M	190 U	18,000 D	190 U
PCB-176	190 U	0.39 J q	50,000 D	190 U
PCB-177	190 U	2.1 J q	250,000 D	3.6 J q
PCB-178	190 U M	0.59 J q	52,000 D	190 U
PCB-179	0.41 J q	1.1 J q	120,000 D	3.5 J
PCB-180/193	380 U	6.4 J	820,000 D	17 J q
PCB-181	190 U	190 U	16,000 D	190 U
PCB-182	190 U	190 U	3,800 D	190 U
PCB-183	190 U	190 U	260,000 D M	190 U
PCB-184	190 U	190 U	660 J D	190 U
PCB-185	190 U M	190 U M	3,800 U M	190 U M
PCB-186	190 U	190 U M	440 J D	190 U
PCB-187	190 U	3.1 J	310,000 D	7.3 J
PCB-188	190 U	190 U M	480 J D	190 U
PCB-189	0.54 J	0.97 J	30,000 D	19 U
PCB-190	190 U	0.7 J q	100,000 D	1.5 J
PCB-191	190 U	190 U	23,000 D	190 U
PCB-192	190 U	190 U	3,800 U	190 U
PCB-194	190 U	0.9 J q	100,000 D	3.5 J q
PCB-195	190 U	190 U	35,000 D	190 U
PCB-196	190 U	190 U	38,000 D	190 U M
PCB-197	190 U	190 U	2,200 J D	190 U
PCB-198/199	380 U	0.59 J q	65,000 D	1.9 J
PCB-200	190 U	190 U	7,900 D	190 U
PCB-201	190 U	190 U	6,400 D	190 U
PCB-202	190 U	1 J	8,400 D	190 U
PCB-203	190 U	190 U	45,000 D	1.1 J q
PCB-204	190 U	190 U	3,800 U	190 U
PCB-205	190 U	0.76 J q	5,700 D	190 U
PCB-206	190 U	190 U	32,000 D	4 J q
PCB-207	190 U	190 U	2,600 J D	190 U
PCB-208	190 U	190 U	4,200 D	4 J
PCB-209	0.41 J q	1 J M	1,300 J D	8.7 J q
Total PCB Congeners in pg/L	90.38	1,246	**108,300,080**	4,590
Total PCB Congeners in µg/L	0.00009	0.0012	**108.3**	0.0046
Cleanup Goal (µg/L)	**0.044**	**0.044**	**0.044**	**0.044**

Notes:
All concentrations are in picograms per gram (pg/L), except where noted.
Bold indicates detected concentration exceeds MTCA Method B risk based cleanup level of 0.044 µg/L for total PCBs.
D – the reported from a diluted analysis

J – analyte positively identified, but result is estimated
M – a manual integration was performed by the laboratory analyst
PCB – polychlorinated biphenyl
q – the reported concentration is the estimated maximum possible concentration for this analyte.
The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Table C-5. OU 1 Chlorinated VOC Surface and Seep Water Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
Remediation Goals		NE	59	1.9	NE	33,000	4.2	41,700	56	2.9
South Plantation										
MA12	3/14/1996	5 U	0.5 U	0.56	180 J	1.6	0.5 U	0.5 U	26	**56 J**
MA12	7/1/1996	11	0.5 U	1	480 J	3.5	0.5 U	0.5 U	**64 J**	**56 J**
MA12	6/11/1999	15	3 U	**2 J**	910	8	3 U	3 U	**130**	**210**
MA12	10/21/1999	12	0.5 U	**1.9**	600	5.5	0.5 U	0.5 U	**110**	**130**
MA12	4/26/2000	21	0.5 U	1.3	630 J	10	0.5 U	0.5 U	**190 J**	**240 J**
MA12	6/6/2000	16	5 U	5 U[1]	670	5.5	5 U	5 U	**110**	**140**
MA12	7/25/2000	25 U	25 U	25 U[1]	750 J	25 U	25 U[1]	25 U	**180 J**	**140 J**
MA12	11/9/2000	14	1 U	1.2	680	5.2	1 U	1 U	**170**	**140**
MA12	4/27/2001	15	1 UJ	1.6	600 J	12	1 U	1 UJ	**100 J**	**92 J**
MA12	6/22/2001	15 J	0.29 U	0.98 J	520 J	6.8 J	0.28 U	0.28 U	**62 J**	**80 J**
MA12	7/31/2001	17	1 U	1.1	500 J	28 J	1 U	1 U	**90**	**150**
MA12	10/30/2001	6.8	1 U	0.8 J	260 J	2.7	1 U	1 U	**82**	**67**
MA12	5/1/2002	7 J	1 U	1 U	440 J	3.1 J	1 U	1 U	**96 J**	**49 J**
MA12	6/19/2002	7.2	0.12 U	0.7	340 J	3	0.11 U	0.12 U	53 J	**57 J**
MA12	7/25/2002	8.3 J	1 U	1.2 J	580 J	4.7 J	1 U	1 U	**86 J**	**94 J**
MA12	10/25/2002	5.1 J	1.3 U	1.3 U	420 J	2.7 J	1.3 U	1.3 U	**59 J**	**55 J**
MA12	4/30/2003	4 J	0.23 U	0.84 U	390 J	2.8 J	0.22 U	0.23 U	**60 J**	**49 J**
MA12	10/22/2003	3.5	0.12 U	0.52	160 J	1.3	0.11 U	0.12 U	28	**45**
MA12	4/21/2004	5.7	0.12 U	0.81	430 J	3.2	0.11 U	0.12 U	**83 J**	**46**
MA12	10/14/2004	11	0.12 U	**2**	660 J	4.7	0.11 U	0.12 U	**57**	**110 J**
MA12	4/14/2005	7.3	0.2 U	0.8	450	5.4	0.2 U	0.2 U	**83**	**51**
MA12	10/13/2005	4.9	0.4	1.3	540	4.8	0.2 U	0.2 U	47	**92**
MA12	7/12/2006	6 D	2.5 U	**2.3 D**	800 D	11 D	2.5 U	2.5 U	**110 D**	**120 D**
MA12	10/17/2006	3.3	0.5 U	1.2 D	460 D	4.1	0.5 U	0.5 U	**59**	**75**
MA12	6/15/2007	3.9 D	1 U	1.3 D	840 D	5.6 D	1 U	1 U	**150 D**	**120 D**
MA12	10/18/2007	0.67	0.5 U	0.29 D	130 D	0.83	0.5 U	0.5 U	12	**28**
MA12	5/9/2008	4.3 D	1 U	1.3 D	670 D	5.8 D	1 U	1 U	**140 D**	**93 D**
MA12	10/28/2008	3 D	1.3 U	1.2 JD	400 D	3.1 D	1.3 U	1.3 U	**65 D**	**49 D**
MA12	6/17/2009	3.9 D	2.5 U	**1.9 D**	1000 D	9 D	2.5 U	2.5 U	**170 D**	**110 D**
MA12	10/27/2009	2.1	0.5 U	1	320 D	2.4	0.5 U	0.5 U	53	**67**
MA12	6/16/2010	2.7 D	1.3 U	1.1 JD	670 D	4.8 D	1.3 U	1.3 U	**87** D	**65 D**
MA12	10/25/2010	0.67	0.5 U	0.32 J	170 D	1	0.5 U	0.5 U	28	**27**
MA12	7/19/2011	2.3 D	1 U	0.98 JD	670 D	4.4 D	1 U	1 U	**100** D	**91 D**
MA12	10/25/2011	2.5	0.5 U	1.1	420 D	3.8	0.5 U	0.5 U	**67**	**51 D**
MA12	6/12/2012	1.8 D	1 U	1.4 D	830 D	5.8 D	1 U	1 U	**120** D	**68 D**
MA12	6/19/2013	1.2 D	1 U	1.5 D	750 D	5.1 D	1 U	1 U	**140** D	**48 D**
MA12	6/18/2014	0.67	0.5 U	0.82	480 D	3.4	0.5 U	0.5 U	**84** D	**42**
MA12	6/24/2015	0.49 J	0.5 U	0.72	380 D	2.7	0.5 U	0.5 U	**56**	**26**
MA12	6/23/2016	0.37 J	0.09 J	0.73	330 D	2.5	0.5 U	0.5 U	**72**	**32**
MA12	6/19/2017	0.4 J	0.5 U	0.77	500 D	2.8	0.5 U	0.5 U	44	**42**
MA12	6/18/2019	0.24	0.2 UM	0.48 M	240 D	1.2	0.5 U	0.2 U	15	**12**

Table C-5. OU 1 Chlorinated VOC Surface and Seep Water Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
Remediation Goals		NE	59	1.9	NE	33,000	4.2	41,700	56	2.9
Central Landfill										
MA11	9/6/1995	1 U	1 UJ	1 U	0.51 J	1 UJ	1 U	1 U	1 U	1 U
MA11	12/6/1995	1 U	1 U	1 U	10	1 U	1 U	1 U	1 U	**3.5**
MA11	3/13/1996	0.43 J	0.5 U	0.5 U	13	0.5 U	0.5 U	0.5 U	1.6	**5.9**
MA11	7/2/1996	0.5 U	0.5 U	0.5 U	0.52	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MA11	6/6/2000	1.2	0.5 U	0.5 U	33	0.56	0.5 U	0.5 U	7.9	**9.2**
MA11	6/22/2001	0.16 J	0.12 U	0.12 U	4.6	0.14 U	0.11 U	0.12 U	0.66	0.98
MA11	6/19/2002	0.54	0.12 U	0.12 U	22	0.24 J	0.11 U	0.12 U	4.2	**5.6**
MA11	4/30/2003	0.41 U	0.12 U	0.12 U	33	0.31 U	0.11 U	0.12 U	6.1	**6**
MA11	4/21/2004	0.33 J	0.12 U	0.12 U	23	0.31 J	0.11 U	0.12 U	4.9	**4**
MA11	4/14/2005	0.2 U	0.2 U	0.2 U	11	0.2 U	0.2 U	0.2 U	2.5	1.4
MA11	7/12/2006	0.5 U	0.5 U	0.2 U	0.14 J	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
MA11	6/15/2007	0.5 U	0.5 U	0.5 U	0.54	0.5 U	0.5 U	0.5 U	0.5 U	0.07 J
MA11	5/9/2008	0.07 J	0.5 U	0.2 U	10	0.15 J	0.5 U	0.5 U	2.1	1.8
MA11	6/24/2009	0.5 U	0.5 U	0.2 U	3.8	0.5 U	0.5 U	0.5 U	0.67	0.38
MA11	6/16/2010	0.5 U	0.5 U	0.5 U	12	0.5 U	0.5 U	0.5 U	1.6	1.4
MA11	7/19/2011	0.5 U	0.5 U	0.5 U	12	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MA11	6/14/2012	0.5 U	0.5 U	0.5 UJ	19	0.21 J	0.5 U	0.5 U	2.8	1.2
MA11	6/19/2013	0.5 U	0.5 U	0.5 U	0.19 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MA11	6/18/2014	0.5 U	0.5 U	0.5 U	8.1	0.5 U	0.5 U	0.5 U	1.5	0.61
MA11	6/23/2016	0.5 U	0.5 U	0.5 U	0.23 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MA11	6/20/2017	0.5 U	0.5 U	0.5 U	0.15 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MA11	6/18/2019	0.2 U	0.2 UM	0.2 UJ	0.2 UJ	0.2 UJ	0.5 UJ	0.2 UJ	0.2 UJ	0.02 UM
North Plantation										
SP1-1	9/5/1995	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.66 J
SP1-1	12/5/1995	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
SP1-1	3/13/1996	0.5 U	0.5 U	0.5 U	170 J	1.8	0.5 U	0.5 U	0.5 U	**420 J**
SP1-1	7/2/1996	0.5 U	0.5 U	0.5 U	7.4	0.76	0.5 U	0.5 U	0.5 U	**31 J**
SP1-1	9/10/1996	0.2 J	0.5 U	0.5 U	0.33 J	0.5 U	0.5 U	0.5 U	0.5 U	1.1
SP1-1	6/11/1999	3 U	3 U	3 U[1]	4	3 U	3 U	3 U	3 U	**32**
SP1-1	10/20/1999	0.5 U	0.5 U	0.5 U	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SP1-1	4/26/2000	0.5 U	0.5 U	0.5 U	32	2.5	0.5 U	0.5 U	1.7	**210 J**
SP1-1	7/25/2000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SP1-1	11/9/2000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1
SP1-1	4/27/2001	1 U	1 UJ	1 U	1.3	0.7 J	1 U	1 UJ	1 U	**8.4**
SP1-1	7/31/2001	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
SP1-1	10/30/2001	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
SP1-1	5/1/2002	0.5 U	0.5 U	0.5 U	5	1	0.5 U	0.5 U	0.5 U	**43**
SP1-1	7/25/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SP1-1	10/25/2002	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
SP1-1	4/29/2003	0.21 U	0.12 U	0.12 U	2.2	0.8	0.11 U	0.12 U	0.12 U	**31**
SP1-1	10/22/2003	0.091 U	0.12 U	0.12 U	0.17 J	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
SP1-1	4/21/2004	0.2 J	0.12 U	0.12 U	0.16 J	0.36 J	0.11 U	0.12 U	0.12 U	1.1
SP1-1	10/14/2004	0.26 J	0.12 U	0.12 U	0.14 J	0.18 J	0.11 U	0.12 U	0.12 U	0.22 U
SP1-1	4/14/2005	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
SP1-1	10/13/2005	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
SP1-1	7/12/2006	0.13 J	0.5 U	0.2 U	0.17 J	0.5 U	0.5 U	0.5 U	0.5 U	0.06 J
SP1-1	10/17/2006	0.14 J	0.5 U	0.3 U	0.16 J	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
SP1-1	6/15/2007	0.11 J	0.5 U	0.5 U	0.14 J	0.5 U	0.5 U	0.5 U	0.5 U	0.05 J
SP1-1	5/8/2008	0.12 J	0.14 J	0.2 U	0.2 J	0.14 J	0.5 U	0.5 U	0.5 U	0.13 J
SP1-1	6/24/2009	0.5 U	0.08 J	0.2 U	0.32 J	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
SP1-1	6/16/2010	0.09 J	0.09 J	0.5 U	0.4 J	0.14 J	0.5 U	0.5 U	0.14 J	0.31 J
SP1-1	7/19/2011	0.1 J	0.5 U	0.5 U	0.27 J	0.13 J	0.5 U	0.5 U	0.5 U	0.11 J
SP1-1	6/25/2014	0.5 U	0.5 U	0.5 U	0.34 J	0.12 J	0.5 UJ	0.5 U	0.5 U	0.24 J
SP1-1	6/18/2019	0.06 J	0.2 U	0.2 U	0.1 J	0.2 U	0.5 U	0.2 U	0.2 UM	0.086

Table C-5. OU 1 Chlorinated VOC Surface and Seep Water Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
Remediation Goals		NE	59	1.9	NE	33,000	4.2	41,700	56	2.9
MA09	9/5/1995	1 U	1 UJ	1 U	4	1 UJ	1 U	1 U	1 U	1.3
MA09	12/5/1995	1 U	1 U	1 U	14	1 U	1 U	1 U	1 U	**5.4**
MA09	3/14/1996	0.29 J	0.5 U	0.5 U	11	0.5 U	0.5 U	0.5 U	1.2	**8**
MA09	7/2/1996	0.5 U	0.5 U	0.5 U	0.79	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MA09	3/3/1998	0.5 U	0.5 U	0.5 U	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.3 J
MA09	6/6/2000	0.5 U	0.5 U	0.5 U	3	0.5 U	0.5 U	0.5 U	0.63	0.64
MA09	6/22/2001	1.2	0.12 U	0.12 U	37	0.51	0.11 U	0.12 U	4.7	**8.3**
MA09	6/27/2002	0.13 J	0.12 U	0.12 U	6.3	0.14 U	0.11 U	0.12 U	0.82	1.4
MA09	4/29/2003	0.27 U	0.12 U	0.12 U	18	0.24 U	0.11 U	0.12 U	3.5	**4.9**
MA09	4/21/2004	0.22 J	0.12 U	0.12 U	15	0.21 J	0.11 U	0.12 U	3.2	1.9
MA09	4/14/2005	0.2 J	0.2 U	0.2 U	14 J	0.2 J	0.2 U	0.2 U	3.1 J	2.5 J
MA09	7/12/2006	0.5 U	0.5 U	0.2 U	2.3	0.5 U	0.5 U	0.5 U	0.5 U	0.3
MA09	6/15/2007	0.5 U	0.5 U	0.5 U	10	0.5 U	0.5 U	0.5 U	1.6	1.8
MA09	5/9/2008	0.5 U	0.5 U	0.2 U	6.3	0.09 J	0.5 U	0.5 U	1.3	1.2
MA09	6/24/2009	0.5 U	0.5 U	0.2 U	12	0.11 J	0.5 U	0.5 U	2.3	1.6
MA09	6/16/2010	0.11 J	0.5 U	0.5 U	23	0.21 J	0.5 U	0.5 U	2.9	2.5
MA09	7/19/2011	0.5 U	0.5 U	0.5 U	0.88 J	0.5 J	0.5 U	0.5 U	0.13 J	0.11 J
MA09	6/13/2012	0.08 J	0.5 U	0.5 U	29	0.24 J	0.5 U	0.5 U	3.7	2.7
MA09	6/19/2013	0.5 U	0.5 U	0.5 U	9.7	0.1 J	0.5 U	0.5 U	1.7	0.49 J
MA09	6/18/2014	0.5 U	0.5 U	0.5 U	12	0.12 J	0.5 U	0.5 U	2.2	0.95
MA09	6/24/2015	0.5 U	0.5 U	0.5 U	0.74	0.5 U	0.5 U	0.5 U	0.1 J	0.5 U
MA09	6/23/2016	0.5 U	0.5 U	0.5 U	2.5	0.5 U	0.5 U	0.5 U	0.56	0.34 J
MA09	6/19/2017	0.5 U	0.5 U	0.5 U	0.16 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
MA09	6/18/2019	0.2 UJ	0.2 U	0.2 UM	0.55	0.2 U	0.5 U	0.2 U	0.2 U	0.1 M
Tide Flats										
TF19	9/5/1995	1 U	1 U	1 U	4	1 U	1 U	1 U	1 U	0.92 J
TF19	12/4/1995	1 U	1 U	1 U	8.7	1 U	1 U	1 U	1 U	**3.1**
TF19	3/12/1996	0.43 J	0.5 U	0.5 U	19	0.26 J	0.5 U	0.5 U	1.3	**19**
TF19	7/1/1996	0.5 U	0.5 U	0.5 U	5.9	0.5 U	0.5 U	0.5 U	0.7	2.4
TF19	9/10/1996	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TF19	3/3/1998	0.5 J	0.5 U	0.5 U	16	0.31 J	0.5 U	0.5 U	2.6	**6.1**
TF19	6/6/2000	0.4 J	0.5 U	0.5 U	12	0.2 J	0.5 U	0.5 U	2.3	**3.1**
TF19	6/22/2001	0.55	0.12 U	0.12 U	18	0.22 J	0.11 U	0.12 U	2.1	**3.2**
TF19	6/19/2002	0.22 J	0.12 U	0.12 U	8.5	0.14 U	0.11 U	0.12 U	1.3	1.9
TF19	4/29/2003	0.43 U	0.12 U	0.12 U	26	0.29 U	0.11 U	0.12 U	4.9	**6.1**
TF19	4/23/2004	0.13 J	0.12 U	0.12 U	9	0.17 J	0.11 U	0.12 U	1.6	1.1
TF19	4/14/2005	0.2 U	0.2 U	0.2 U	11	0.2 U	0.2 U	0.2 U	2.4	1.8
TF19	7/12/2006	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
TF19	6/15/2007	0.5 U	0.5 U	0.5 U	6.5	0.5 U	0.5 U	0.5 U	0.98	1
TF19	5/9/2008	0.5 U	0.5 U	0.2 U	0.18 J	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
TF19	6/25/2009	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
TF19	6/17/2010	0.5 U	0.5 U	0.5 U	3.9	0.5 U	0.5 U	0.5 U	0.58	0.42 J
TF19	7/19/2011	0.5 U	0.5 U	0.5 U	0.27 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TF19	6/18/2014	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TF19	6/20/2019	0.2 U	0.2 U	0.2 U	0.83	0.2 U	0.5 U	0.2 U	0.2 U	0.02 U

Table C-5. OU 1 Chlorinated VOC Surface and Seep Water Sampling Results through June 2019

Location ID	Sampling Date	1,1-DCA	1,2-DCA	1,1-DCE	cis-1,2-DCE	trans-1,2-DCE	PCE	1,1,1-TCA	TCE	Vinyl Chloride
Remediation Goals		NE	59	1.9	NE	33,000	4.2	41,700	56	2.9
Dogfish Bay										
DB14	9/5/1995	1 U	1 UJ	1 U	1 U	1 UJ	1 U	1 U	1 U	1 U
DB14	12/4/1995	1 U	1 U	1 U	1.9	1 U	1 U	1 U	1 U	1 U
DB14	3/13/1996	0.5 U	0.5 U	0.5 U	0.35 J	0.5 U	0.5 U	0.5 U	0.5 U	0.25 J
DB14	7/1/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DB14	9/10/1996	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DB14	3/3/1998	0.5 U	0.5 U	0.5 U	1.5	0.5 U	0.5 U	0.5 U	0.5 U	0.58
DB14	6/6/2000	0.5 U	0.5 U	0.5 U	0.59	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DB14	6/22/2001	0.091 U	0.12 U	0.12 U	0.7	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
DB14	6/19/2002	0.091 U	0.12 U	0.12 U	0.53	0.14 U	0.11 U	0.12 U	0.12 U	0.22 U
DB14	4/29/2003	0.091 U	0.12 U	0.12 U	1.8	0.14 U	0.11 U	0.12 U	0.35 U	0.38 U
DB14	4/23/2004	0.091 U	0.12 U	0.12 U	0.63	0.14 U	0.11 U	0.12 U	0.12 J	0.22 U
DB14	4/14/2005	0.2 U	0.2 U	0.2 U	0.6	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
DB14	7/12/2006	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
DB14	6/15/2007	0.5 U	0.5 U	0.5 U	1.1	0.5 U	0.5 U	0.5 U	0.18 J	0.16 J
DB14	5/9/2008	0.5 U	0.5 U	0.2 U	0.13 J	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
DB14	6/25/2009	0.5 U	0.5 U	0.2 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.2 U
DB14	6/17/2010	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DB14	7/19/2011	0.5 U	0.5 U	0.5 U	0.07 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DB14	6/18/2014	0.5 U	0.5 U	0.5 U	0.07 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DB14	6/18/2019	0.2 U	0.2 UM	0.2 UM	0.2 UM	0.2 UM	0.5 UM	0.2 U	0.2 U	0.02 U

Notes:

All concentrations are in µg/L.

Bold indicates detected value is equal to or exceeds surface water remediation goal.

Yellow highlighting indicates samples collected during this FYR period.

D – the reported result is from a dilution

DCA – dichloroethane

DCE – dichloroethene

J – estimated result

M – manual integrated compound

µg/L – micrograms per liter

NE – not established

PCE – tetrachloroethene

TCA – trichloroethane

TCE – trichloroethene

U – not detected at value shown

U[1] – not detected at value shown and value exceeds remediation goal

UJ – not detected at the estimated value shown

Table C-6. OU 1 Total PCBs (Aroclors) in Seep SP1-1 Water through June 2019

Sampling Date	Program	Total PCBs (μg/L)
Total PCBs Remediation Goal		**0.044**
Spring 1990	RI	1.8
Fall 1991	RI	1.5
September 5, 1995	Post-RI	0.16
December 5, 1995	–	0.15
March 13, 1996	Post-RI	0.2
July 2, 1996	Post-RI	0.24 J
October 10, 1996	Post-RI	0.13
June 7, 2000	Post-RA/LTM	0.42
June 17, 2002	Post-RA/LTM	0.45
April 21, 2004	Post-RA/LTM	0.42
July 12, 2006	Post-RA/LTM	0.29
May 8, 2008	Post-RA/LTM	0.27
June 16, 2010	Post-RA/LTM	0.28
June 25, 2014	Post-RA/LTM	0.696
June 20, 2017	Post-RA/LTM	0.010 U
June 18, 2019	Post-RA/LTM	0.572 J

Notes:

μg/L – micrograms per liter

U – not detected at value shown

RI – remedial investigation

RA – remedial action

LTM – long-term monitoring

Table C-7. OU 1 PCB Congeners Seep Water Results, June 2019

Congener	SP1-1 AREA-1-19-220	SP1-1 (DUP) AREA-1-19-221
PCB-1	16,000	15,000
PCB-2	900	740
PCB-3	7,000 J	5,900 J
PCB-4	210,000 D M J1	170,000 D
PCB-5	1,200 U M	900 U M
PCB-6	160,000 D M	110,000 D M
PCB-7	2,500 M	1,700 M
PCB-8	180,000 D M	120,000 D M
PCB-9	3,900 M	2,700 M
PCB-10	5,900	4,400
PCB-11	4,700 M	3,700 M
PCB-12/13	18,000 M	13,000 M
PCB-14	1,100 U	850 U
PCB-15	100,000 D J1	64,000 D
PCB-16	77,000 D	45,000 D
PCB-17	100,000 D	62,000 D
PCB-18/30	230,000 D	130,000 D
PCB-19	67,000 D J1	39,000 D
PCB-20/28	170,000 D	96,000 D M
PCB-21/33	31,000	20,000 M
PCB-22	38,000 D	22,000 D M
PCB-23	900 U	660 U
PCB-24	190 U	190 U
PCB-25	63,000 D	35,000 D M
PCB-26/29	100,000 D	58,000 D
PCB-27	62,000 D	36,000 D
PCB-31	150,000 D	83,000 D M
PCB-32	63,000 D	36,000 D
PCB-34	2,300 M	1,500 M
PCB-35	960 M	700 U
PCB-36	810 U	590 U
PCB-37	19,000 D J1	13,000 M
PCB-38	900 U	660 U
PCB-39	920 U	670 U
PCB-40/71	46,000 D M	22,000 M
PCB-41	34,000 D	18,000
PCB-42	5,000 M	2,700 M
PCB-43	120,000 D	71,000 D
PCB-44/47/65	25,000 D M	14,000 M
PCB-45	18,000 D	11,000
PCB-46	12,000	6,500
PCB-48	110,000 D	67,000 D
PCB-49/69	65,000 D	34,000
PCB-50/53	9,300 M	4,600 M
PCB-51	210,000 D M	120,000 D M
PCB-52	1,100 J	730 J
PCB-54	190 U M	190 U M
PCB-55	11,000	6,600
PCB-56	1,000 M	490 M

Table C-7. OU 1 PCB Congeners Seep Water Results, June 2019

Congener	SP1-1 AREA-1-19-220	SP1-1 (DUP) AREA-1-19-221
PCB-57	420 M	190 M
PCB-58	20,000	10,000
PCB-59/62/75	2,100	1,300 M
PCB-60	53,000	28,000
PCB-61/70/74/76	2,300 M	1,200 M
PCB-63	35,000 D M	16,000 M
PCB-64	44,000 D	19,000
PCB-66	3,400 M	1,600 M
PCB-67	1,600 M	750 M
PCB-68	2,300 M	1,100 M
PCB-72	1,400 U	830 U
PCB-73	3,500 J M	2,000 J
PCB-77	200 U	190 U
PCB-78	570 M	320 M
PCB-79	330	190
PCB-80	310 U M	160 U M
PCB-81	4,800	3,000
PCB-82	5,400 M	2,700 M
PCB-83	43,000 D	16,000
PCB-84	7,600	4,800
PCB-85/116/117	37,000	23,000
PCB-86/87/97/108/119/125	18,000	8,200
PCB-88/91	970 U	580 U
PCB-89	87,000 D	42,000 M
PCB-90/101/113	16,000	9,800 M
PCB-92	1,900 M	850 M
PCB-93/100	2,000 M	910 M
PCB-94	110,000 D M	66,000 D M
PCB-95	2,200	1,100
PCB-96	4,400 M	1,900 M
PCB-98/102	44,000 D M	25,000 D M
PCB-99	1,700 M	780 M
PCB-103	20 J	12 J
PCB-104	12,000 M	7,000 M
PCB-105	680 U	410 U
PCB-106	1,100 M	650 M
PCB-107/124	3,400 M	2,100 M
PCB-109	87,000 D	50,000 D
PCB-110/115	760 U	460 U
PCB-111	610 U M	360 U M
PCB-112	940 U	540 U
PCB-114	47,000 D M J1	27,000 D M
PCB-118	640 U	380 U
PCB-120	650 U	390 U
PCB-121	960 U	580 U
PCB-122	960 U	560 U
PCB-123	1,100 U	650 U
PCB-126	800 U	480 U
PCB-127	5,900	3,200

Table C-7. OU 1 PCB Congeners Seep Water Results, June 2019

	SP1-1	SP1-1 (DUP)
Congener	AREA-1-19-220	AREA-1-19-221
PCB-128/166	46,000	24,000
PCB-129/138/163	3,100	1,600
PCB-130	510 M	290 M
PCB-131	16,000 M	8,400 M
PCB-132	720 M	370 M
PCB-133	3,400 M	1,800 M
PCB-134/143	15,000 M	7,700 M
PCB-135/151	7,500	3,900
PCB-136	1,800	930
PCB-137	770 M	400 M
PCB-139/140	6,300	3,100
PCB-141	250 U	200 U
PCB-142	1,600	800 M
PCB-144	190 U	190 U
PCB-145	6,700	3,400
PCB-146	37,000 M	18,000 M
PCB-147/149	220 U	190 U
PCB-148	190 U	190 U
PCB-150	190 U	190 U
PCB-152	36,000	19,000
PCB-153/168	970 M	500 M
PCB-154	190 U	190 U
PCB-155	3,900 J	2,300 J
PCB-156/157	4,000	2,000
PCB-158	150 J	91 J
PCB-159	200 U M	190 U M
PCB-160	190 U M	190 U M
PCB-161	140 J M	91 J M
PCB-162	2,800	1,500
PCB-164	200 U	190 U
PCB-165	1,800 J	990 J
PCB-167	43 U	28 U
PCB-169	7,300	4,300
PCB-170	2,000	1,200
PCB-171/173	1,100	620
PCB-172	5,600	3,200
PCB-174	340	160 J
PCB-175	930 M	460
PCB-176	3,500	2,000
PCB-177	1,500	750
PCB-178	2,700	1,300 M
PCB-179	14,000	8,000
PCB-180/193	190 U	190 U
PCB-181	88 J M	36 J M
PCB-182	3,600 M	2,200 M
PCB-183	14 J M	6 J M
PCB-184	540 M	220 M
PCB-185	190 U	190 U
PCB-186	8,100 M	3,900 M

Table C-7. OU 1 PCB Congeners Seep Water Results, June 2019

Congener	SP1-1 AREA-1-19-220	SP1-1 (DUP) AREA-1-19-221
PCB-187	23 J	14 J M
PCB-188	310	160 M
PCB-189	1,300 M	740
PCB-190	270	170 J
PCB-191	190 U	190 U
PCB-192	2,000	1,100
PCB-194	840	430
PCB-195	1,300	680
PCB-196	75 J	43 J M
PCB-197	2,200	1,200
PCB-198/199	290	150 J M
PCB-200	290	160 J
PCB-201	420	260
PCB-202	1,400	800
PCB-203	190 U	190 U
PCB-204	150 J	70 J
PCB-205	690 J	440 J
PCB-206	76 J	50 J
PCB-207	200	130 J
PCB-208	470	270
PCB-209	2,700 U	1,600 U
Total PCB Congeners (pg/L)	3,519,276	2,080,293
Total PCB Congeners (µg/L)	**3.5193**	**2.0803**
Cleanup Goal (µg/L)	**0.044**	**0.044**

Notes:

All concentrations are in picograms per gram (pg/L), except where noted.

Bold indicates detected concentration exceeds MTCA Method B risk based cleanup level of 0.044 µg/L for total PCBs.

D – the reported from a diluted analysis

J – analyte positively identified, but result is estimated

J1 – the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

M – a manual integration was performed by the laboratory analyst

PCB – polychlorinated biphenyl

q – the reported concentration is the estimated maximum possible concentration for this analyte.

The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

Table C-8. OU 1 PCB Aroclors Sediment Results, June 2019

Location ID	Sample ID	Sampling Date	Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Total PCBs
SP1-1	AREA-1-19-250	6/18/2019	14 J	22 UM	22 UM	22 UM	22 UM	22 UM	34.67	**48.67 J**
SP1-1 (DUP)	AREA-1-19-251	6/18/2019	12 J	16.5 UM	16.5 UM	16.5 UM	16.5 UM	16.5 UM	24	**36 J**
MA09	AREA-1-19-252	6/18/2019	6.77 UM J1	6.77 UM	6.77 UM	6.77 UM	6.77 UM	1.15 J	6.77 UM	1.15 J
MA14	AREA-1-19-253	6/18/2019	7.17 UM	7.17 U	7.17 UM	7.17 UM	7.17 UM	1.2 J	7.17 UM	1.2 J
TF21	AREA-1-19-254	6/20/2019	5.58 UM	5.58 U	5.58 UM	5.58 UM	5.58 UM	5.58 U	5.58 UM	5.58 UM
Sediment Quality Standard (mg/kg OC)			**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**12**

Notes:

All concentrations are in milligrams per kilogram and have been normalized for organic carbon (mg/kg OC).

Bold indicates detected concentration is equal to or exceeds the SQS of 12 mg/kg for total PCBs in sediment.

D – the report results is from a diluted analysis

DUP – field duplicate sample

GW – groundwater

J – analyte positively identified, but result is estimated

J1 – the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria

P – the relative percent difference is greater than 40 percent between the results on the two analytical columns

PCBs – polychlorinated biphenyls

SQS – sediment quality standard

U – the analyte was not detected at or above the indicated practical quantitation limit

UJ – analyte not detected, but the reported quantitation/detection limit is estimated

Table C-9. OU 1 PCB Congeners Sediment Results, June 2019

Congener	SP1-1	SP1-1 (DUP)	MA09	MA14	TF21
	AREA-1-19-250	AREA-1-19-251	AREA-1-19-252	AREA-1-19-253	AREA-1-19-254
PCB-1	550 M	360 M	6.2 J	3.9 J M	7.4 J
PCB-2	100	73 M	43	39 M	83
PCB-3	430	310 M	4.2 J	4.1 J	7.7 J
PCB-4	13,000 D M	13,000 D M	24 M	16 J M	61 M
PCB-5	110 U	110 U	20 U	20 U	20 U
PCB-6	11,000 D M	9,900 D M	23 M	18 J M	43 M
PCB-7	140 M	130 M	20 U	20 U	20 U
PCB-8	13,000 D M	11,000 D M	35 M	29 M	58 M
PCB-9	240 M	200 M	20 U	20 U	20 U
PCB-10	340	380	20 U	20 U	20 U
PCB-11	410 M	370 M	19 J M	23 J M	28 M
PCB-12/13	1,600 M	1,300 M	13 J M	9 J M	9 J M
PCB-14	100 U	100 U	20 U	20 U	20 U
PCB-15	8,300 D	7,400 D M	64 M	58 M	53 M
PCB-16	4,900 D	4,400 D	20	15 J	20
PCB-17	6,700 D	6,000 D	30	18 J	34
PCB-18/30	15,000 D	14,000 D	53	35 J	49
PCB-19	3,600 D	3,800 D	9.5 J	6.7 J M	13 J
PCB-20/28	11,000 D	9,200 D M	110 q	100	94
PCB-21/33	2,400 D M	1,900 M	21 J q	25 J	22 J
PCB-22	2,400 D	1,900 D M	19 J	20	14 J M
PCB-23	100 U	100 U	20 U	20 U	20 U
PCB-24	20 U	20 U	20 U	20 U	20 U
PCB-25	3,400 D	3,000 D M	28 q	20 M	19 J
PCB-26/29	5,800 D	5,000 D	66 q	42 M	35 J
PCB-27	4,300 D	4,400 D	19 J	11 J	21
PCB-31	9,900 D	8,000 D M	100	89	67
PCB-32	4,000 D	3,700 D	18 J	12 J	21
PCB-34	140 M	120 M	20 U	20 U	20 U
PCB-35	110 U	110 U	20 U	2.5 J M	2.3 J M
PCB-36	92 U	94 U M	3.4 J q	20 U	20 U
PCB-37	1,900	1,400 M	29	37	26 M
PCB-38	100 U	100 U	20 U	20 U	20 U
PCB-39	100 U	110 U	20 U	20 U	20 U
PCB-40/71	2,800	2,700	36 J	26 J M	16 J M
PCB-41	170 U	290 U	20 U	20 U	20 U
PCB-42	2,400 D	2,000 D	19 J	16 J	11 J
PCB-43	320 M	340 M	2.8 J M	2.2 J M	20 U
PCB-44/47/65	8,300 D	7,200 D	98	78	50 J
PCB-45	1,900 M	1,800 M	10 J M	7.5 J M	6.7 J M
PCB-46	1,200	1,200	5.3 J	3.6 J	3.6 J
PCB-48	740	730	7.6 J	7 J	4.7 J
PCB-49/69	7,600 D	6,700 D	110	72	59
PCB-50/53	4,000	4,200 D	25 J	14 J	17 J
PCB-51	500 M	440 M	3.2 J M	1.7 J M	2.8 J M
PCB-52	15,000 D	13,000 D M	230 M	190 M	110 M
PCB-54	90	80 M q	0.74 J M	0.71 J M	20 U
PCB-55	31 U M	22 U M	20 U M	20 U M	20 U M
PCB-56	1,100 M	870 M	19 J	27	14 J M
PCB-57	35 M	36 M	20 U	20 U	20 U
PCB-58	31 U	230 M	6 J M	20 U M	1.2 J M
PCB-59/62/75	1,200	1,300	11 J	7.9 J	5.6 J
PCB-60	350 M	260 M	9.2 J	14 J	8.3 J M
PCB-61/70/74/76	4,200 M	3,000 M	85 M	150 M	49 J M q
PCB-63	120 M	100 M	2.1 J M	2.5 J M	1.3 J
PCB-64	2,000	1,900	22	28 M	11 J
PCB-66	3,900 D	3,000 D	79 M	90 M	47 M
PCB-67	180 M	27 M	1.8 J M	2 J M	0.72 J q
PCB-68	75 M	68 M	1.6 J	1.7 J M	1.1 J
PCB-72	120	100 M	2.3 J	2.3 J	1.3 J
PCB-73	91 U	150 U	20 U	20 U	20 U
PCB-77	660	390 M	22	24	20
PCB-78	39 U	28 U	20 U	20 U	20 U
PCB-79	300	100 M	4.9 J	4.5 J M	1.7 J M
PCB-80	100 M	93 M	3.2 J	3.2 J M	0.89 J
PCB-81	45 U M	31 U M	2 U	2 U M	2 U
PCB-82	1,200	770	46	42	9.7 J
PCB-83	660 M	560 M	20 M	15 J M	6.6 J M

Table C-9. OU 1 PCB Congeners Sediment Results, June 2019

	SP1-1	SP1-1 (DUP)	MA09	MA14	TF21
Congener	AREA-1-19-250	AREA-1-19-251	AREA-1-19-252	AREA-1-19-253	AREA-1-19-254
PCB-84	4,600 D	2,700 D	84 M	74 M	16 J M
PCB-85/116/117	2,000	1,400	97	110	33 J
PCB-86/87/97/108/119/125	8,500 M	6,000 M	320 M	330 M	79 J M
PCB-88/91	2,000 M	1,400 M	45 M	52 M	13 J M
PCB-89	230 U	160 U	20 U	20 U	20 U
PCB-90/101/113	18,000 D	10,000 D	530	520	160
PCB-92	3,500 D	2,100 D	100	100	28
PCB-93/100	240 U	230 M	40 U	40 U	40 U
PCB-94	270 U	190 U	20 U	20 U	20 U
PCB-95	16,000 D M	9,400 D M	220 M	260 M	50 M
PCB-96	120	62 M	1.6 J	1.2 J	0.73 J M
PCB-98/102	460 M	360 M	7.4 J M	8 J M	3 J M
PCB-99	5,600 D M	3,900 D M	260 M	260 M	100 M
PCB-103	220 U	150 U	20 U	20 U	20 U
PCB-104	4 J	2 J M	0.25 J	0.24 J M	20 U
PCB-105	4,100 D	2,200 D	220 J J1	270	100
PCB-106	160 U	110 U	20 U	20 U	20 U
PCB-107/124	400	250	9.6 J	21 J	5.2 J
PCB-109	1,200 M	710 M	38 M	50 M	20 M
PCB-110/115	17,000 D	9,900 D	590	680	160
PCB-111	180 U	120 U	20 U	20 U	20 U
PCB-112	140 U M	99 U M	20 U M	20 U M	20 U M
PCB-114	190 U	130 U	7.9 M	11 M	3.3 M
PCB-118	13,000 D B	7,200 B D	590 J J1 B M	690 B	270 B
PCB-120	150 U	100 U	20 U	20 U	20 U
PCB-121	160 U	110 U	20 U	20 U	20 U
PCB-122	230 U	160 U	9.1 J M	11 J M	3.5 J M
PCB-123	200 U	140 M	7.6 M	10 M	4.5 M
PCB-126	500 M	210 M	4.3 U	6.2 U	2.4 U
PCB-127	190 U	130 U	20 U	20 U	20 U
PCB-128/166	4,500 D	2,200	130	150	51
PCB-129/138/163	47,000 D	21,000 D	730	850	310
PCB-130	2,700 D	1,400	45	60	20
PCB-131	290 M	140 M	7.2 J	7.3 J	2 J M
PCB-132	11,000 D	4,900 D	160	180	47 M
PCB-133	510	280 M	6.8 J	9 J	4 J M
PCB-134/143	1,400 M	830 M	28 J M	29 J M	8.5 J M
PCB-135/151	12,000 D	5,600 D	110 M	130	44 M
PCB-136	3,800 D M	1,800 M	48 M	45	16 J
PCB-137	840	530 M	37	46	12 J
PCB-139/140	500 M	270 M	13 J	12 J	4.1 J M
PCB-141	8,600 D	3,600 D	66	84	23
PCB-142	160 U	81 U	20 U	20 U	20 U
PCB-144	1,600 M	800 M	17 J	17 J M	5.8 J
PCB-145	97 U	50 U	20 U	20 U	20 U
PCB-146	6,400 D	2,900 D	67	83	38
PCB-147/149	28,000 D	13,000 D	320	370	130 M
PCB-148	140 U	73 U	20 U	20 U	20 U
PCB-150	100 U	53 U	20 U	20 U	20 U
PCB-152	91 U	47 U	20 U	20 U	20 U
PCB-153/168	43,000 D	19,000 D	440	470	230
PCB-154	650 M	350 M	6.6 J M	5.6 J M	4.2 J
PCB-155	120 U	69 U	20 U	20 U	20 U
PCB-156/157	4,100 D	2,300	90	120	37
PCB-158	4,200 D	1,900	72	76	25
PCB-159	360	170	1.1 J	1.8 J M	0.89 J
PCB-160	130 U M	66 U M	20 U M	20 U M	20 U M
PCB-161	99 U M	51 U M	20 U M	20 U M	20 U M
PCB-162	240 M	120 M	2.5 J M	4.3 J M	1.3 J M
PCB-164	2,800 D	53 U	32	43	12 J
PCB-165	120 U	64 U	20 U	20 U	20 U
PCB-167	2,200 D	1,200	32	42	14
PCB-169	77 M	37 U	2 U	2 U	2 U
PCB-170	19,000 D	7,100 D	47	79	40
PCB-171/173	4,800 D	2,200 M	18 J	28 J	16 J
PCB-172	2,900 D	1,300	7.6 J	13 J	7.1 J
PCB-174	13,000 D	5,200 D	32	61 M	32 M
PCB-175	610	220	2.2 J	2.7 J	2.9 J M

Table C-9. OU 1 PCB Congeners Sediment Results, June 2019

	SP1-1	SP1-1 (DUP)	MA09	MA14	TF21
Congener	AREA-1-19-250	AREA-1-19-251	AREA-1-19-252	AREA-1-19-253	AREA-1-19-254
PCB-176	1,500	530	5.1 J	7.2 J	5 J
PCB-177	7,900 D	3,200 D	26	44	27
PCB-178	2,900 D	1,000	11 J	15 J	12 J
PCB-179	5,100 D	1,600	13 J M	21	15 J
PCB-180/193	39,000 D	14,000 D	83 M	140 M	91
PCB-181	120 U	51 U	1.1 J	1.7 J M	20 U
PCB-182	110 M	33 M	0.5 J M	0.29 J M q	0.5 J M
PCB-183	11,000 D M	3,800 D M	32 M	40 M	31 M
PCB-184	20	8 J	0.086 J M q	20 U	0.23 J M
PCB-185	950 M	590 M	1.8 J M	2.9 J M	2.4 J M
PCB-186	20 U	20 U	20 U	20 U	20 U
PCB-187	17,000 D M	6,000 D M	51 M	77 M	67 M
PCB-188	51	25	0.5 J M	0.47 J M	0.93 J
PCB-189	800 M	300 M	3.2 M	4.8	2.6 M
PCB-190	3,500 D	1,400	10 J M	16 J M	7.8 J
PCB-191	750	310	2.4 J M	3.1 J M	1.6 J
PCB-192	99 U	41 U	20 U	20 U	20 U
PCB-194	5,900 D	2,600 D	14 J	27	25
PCB-195	2,300 D	1,600	5 J	10 J	8.7 J
PCB-196	4,200 D	1,000	7.2 J	11 J	15 J
PCB-197	210	51	0.71 J	0.81 J M q	1.5 J M
PCB-198/199	6,900 D	1,600	15 J	28 J	31 J
PCB-200	660	200	1.4 J	2.4 J M	2.1 J M
PCB-201	920	240	2.9 J	4.1 J	5.9 J
PCB-202	1,600	620	5.6 J	10 J	11 J
PCB-203	4,500 D	1,100 M	9 J	15 J	14 J
PCB-204	20 U	20 U	20 U	20 U	20 U
PCB-205	410	160	0.79 J	1.5 J	1.2 J M
PCB-206	1,800 D	930	15 J	32	25
PCB-207	280	110	2.1 J	3.6 J M	4.3 J
PCB-208	550	230	6.1 J	14 J	13 J
PCB-209	370	340	25	46	50
Total PCB Congeners (pg/g)	630,842	366,488	7,696	8,522	3,906
Total PCB Congeners (mg/kg)	0.6308	0.3665	0.0077	0.0085	0.0039
Total Organic Carbon	1.50%	2.00%	0.96%	0.92%	1.20%
Total PCB congeners (mg/kg OC)	**42.0561**	**18.3244**	0.8017	0.9263	0.3255
Cleanup Goal (mg/kg)	**12**	**12**	**12**	**12**	**12**

Notes:

All concentrations are in picograms per gram (pg/g), except where noted.

Bold indicates detected concentration exceeds the RG of 12 mg/kg for total PCBs.

B – the analyte was detected above one-half the reporting limit in an associated blank.

D – the reported from a diluted analysis

J – analyte positively identified, but result is estimated

J1 – the quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

M – a manual integration was performed by the laboratory analyst

PCB – polychlorinated biphenyl

q – the reported concentration is the estimated maximum possible concentration for this analyte.

The measured ion ratio does not meet qualitative identification criteria and indicates a possible interference.

APPENDIX D
OU 1 DATA COLLECTED DURING FYR PERIOD

Table D-1. OU 1 2014 cVOC Concentrations in Groundwater

Location	Date	PCE (µg/L)	TCE (µg/L)	1,1-DCE (µg/L)	cis- 1,2-DCE (µg/L)	trans- 1,2-DCE (µg/L)	Vinyl Chloride (µg/L)	1,1,1-TCA (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	cVOCs (µg/L)
Remediation Goal		**5**	**5**	**0.5**	**70**	**100**	**0.5**	**200**	**800**	**5**	**NE**
MW1-4	6/23/2014	10 U	6,100	4.2 J	3,500	27	110	10 U	10 U	10 U	9,741
MW1-5	6/23/2014	0.5 U	0.24 J	0.5 U	0.85	0.2 J	17	0.5 U	0.78	0.5 U	19
MW1-16	6/23/2014	0.5 U	0.11 J	0.5 U	0.63	0.39 J	0.29 J	0.5 U	2.5	0.5 U	3.9
MW1-17	6/18/2014	0.5 U	0.5 U	1.5	360	0.31 J	62	0.5 U	0.5 U	0.5 U	424
P1-6	6/23/2014	10 U	10 U	10 U	3,420	60.7	3,800	10 U	172	20 U	7,453
P1-7	6/23/2014	100 U	33,800	100 U	55,700	305	6,850	100 U	100 U	200 U	96,655
P1-8	6/23/2014	1 U	1 U	1 U	18.7	1 U	88	1 U	1 U	2 U	107
P1-9	6/23/2014	1 U	906	1.7	1,740	17.8	356	1 U	1 U	2 U	3,022
P1-10	6/23/2014	10 U	287	10 U	1,040	17.7	1,150	10 U	10 U	20 U	2,495
S-2	9/4/2014	0.1 U	0.1	0.1 U	1.1	0.1 U	2.1	0.1 U	0.6	NA	3.9
S-2B	9/4/2014	1.0 U	1.0 U	1.0 U	1.0 U	1.9	16	1.0 U	10.3	NA	28.2
S-3	9/4/2014	0.1 U	0.1 U	0.1 U	0.2	0.1	0.4	0.1 U	0.1	NA	0.8
S-3B	9/4/2014	0.1 U	0.1 U	0.1 U	1.1	0.1 U	0.2 U	0.1 U	0.1	NA	1.2
S-4	9/4/2014	100 U	100 U	100 U	46,000	302	13,200	100 U	100 U	NA	59,500
S-4B	9/4/2014	1.0 U	1.0 U	1.0 U	416	1.5	191	1.0 U	1.0 U	NA	608
S-5	9/4/2014	1.0 U	6.5	1.3	1350	4.7	43.7	1.0 U	1.0 U	NA	1400
S-5B	9/4/2014	0.1 U	0.1 U	0.1 U	0.4	0.1 U	1.5	0.1 U	0.1 U	NA	2
S-6	9/4/2014	0.1 U	0.6	0.1 U	3.1	0.1	1.9	0.1 U	0.1 U	NA	5.7

Notes:
cVOCs - sum of detected chlorinated volatile organic chemicals, including seven chemicals in table and PCE and 1,1,1-TCA
DCA - dichloroethane
DCE - dichloroethene
J - estimated
µg/L - microgram per liter
NA - not analyzed
NE - not established
PCE - tetrachloroethene
TCA - trichloroethane
TCE - trichloroethene
U - non-detect

Table D-2. OU 1 2017 Target cVOCs in Auger Boring Soil Samples (µg/kg)

	Location Name	MW1-42	MW1-43	MW1-44	MW1-45	MW1-46		MW1-47
	Sample Name	CL-B76-S-19.0-171006	CL-B77-S-18.0-171006	CL-B75-S-26.0-171005	CL-B74-S-18.5-171005	CL-B78-S-28.5-171007	FD-171007-01	CL-B79-S-21.5-171009
	Sample Type	N	N	N	N	P	FD	N
Analyte Name	PAL	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1490	23 U	21 U	22 U	23 U	18 U	63 U	21 U
1,1-Dichloroethane	40.7	23 U	21 U	22 U	23 U	18 U	63 U	21 U
1,1-Dichloroethene	45.7	23 U	21 U	39 J	23 U	18 U	63 U	**56**
1,2-Dichloroethane	23.1	39 U	37 U	38 U	40 U	32 U	110 U	37 U
Chloroethane	40.7	110 U	110 U	110 U	110 U	92 U	320 U	100 U
Cis-1,2-Dichloroethene	78.1	**110**	**4,000**	**6,600**	23 U	**3,500**	**11,000**	**36,000** J
Tetrachloroethene	49.9	39 U	37 U	38 U	40 U	32 U	110 U	37 U
Trans-1,2-Dichloroethene	518	190	150	**60** J	68 U	53 J	240 J	390
Trichloroethene	25.2	**73**	37 U	38 U	40 U	**200**	**150** J	**54**
Vinyl Chloride	1.67	230 U	**150** J	**130** J	230 U	**630**	**450** J	**2,400** J

Table D-2. OU 1 2017 Target cVOCs in Auger Boring Soil Samples (µg/kg)

	Location Name	MW1-48	MW1-49	MW1-50	MW1-51	MW1-52	MW1-53	MW1-54
	Sample Name	CL-B83-S-18.5-171012	SP-B80-S-7.5-171010	SP-B73-S-9.0-171004	SP-B71-S-13.5-171002	SP-B72-S-12.0-171003	SP-B82-S-10.0-171011	SP-B81-S-38.5-171011
	Sample Type	N	N	N	N	N	N	N
Analyte Name	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	1490	29 U	22 U	20 U	24 UJ	23 U	21 U	20 U
1,1-Dichloroethane	40.7	29 U	22 U	20 U	**140** J	23 U	21 U	20 U
1,1-Dichloroethene	45.7	29 U	22 U	20 U	45 J	23 U	21 U	20 U
1,2-Dichloroethane	23.1	50 U	38 U	36 U	41 UJ	40 U	37 U	36 U
Chloroethane	40.7	140 U	110 U	100 U	120 UJ	110 U	110 U	100 U
Cis-1,2-Dichloroethene	78.1	**440**	**620**	**730**	**4,000** J	**3,700**	**5,300**	**93**
Tetrachloroethene	49.9	50 U	38 U	36 U	41 UJ	40 U	37 U	36 U
Trans-1,2-Dichloroethene	518	86 U	65 U	61 U	220 J	86 J	310	61 U
Trichloroethene	25.2	**52** J	**2,200**	**3,500**	**1,600** J	**52** J	**3,000**	36 U
Vinyl Chloride	1.67	**440**	220 U	200 U H	**980** J	**260** J	**530**	200 U

Table D-2. OU 1 2017 Target cVOCs in Auger Boring Soil Samples (µg/kg)

	Location Name	MW1-55	MW1-56	MW1-56	MW1-56	MW1-57		MW1-57
	Sample Name	SP-B86-S-35.0-171016	SP-B87-S-29.0-171017	SP-B87-S-37.5-171017	SP-B87-S-9.0-171017	FD-171018-01	SP-B88-S-9.0-171018	SP-B88-S-31.0-171018
	Sample Type	N	N	N	N	FD	P	N
Analyte Name	PAL	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1490	14 U	27 U	21 U	22 U	19 UJ	21 UJ	27 U
1,1-Dichloroethane	40.7	14 U	27 U	21 U	22 U	19 UJ	21 UJ	27 U
1,1-Dichloroethene	45.7	14 U	27 U	21 U	22 U	**350** J	**540** J	27 U
1,2-Dichloroethane	23.1	24 U	47 U	38 U	39 U	34 UJ	37 UJ	47 U
Chloroethane	40.7	69 U	130 U	110 U	110 U	96 UJ	110 UJ	130 U
Cis-1,2-Dichloroethene	78.1	**290**	**5,200**	**80** J	22 U	**240,000** J	**350,000** J	**760**
Tetrachloroethene	49.9	24 U	47 U	38 U	39 U	**2,000** J	**4,200** J	47 U
Trans-1,2-Dichloroethene	518	41 U	80 U	64 U	66 U	**3,500** J	**5,600** J	61 J
Trichloroethene	25.2	**520**	**420** J	**120** J	39 U M	**1,800,000** J	**3,500,000** J	**59** J
Vinyl Chloride	1.67	140 UJ	270 UJ	210 UJ	220 UJ	**5,000** J	**4,200** J	**100** J

Table D-2. OU 1 2017 Target cVOCs in Auger Boring Soil Samples (µg/kg)

	Location Name	MW1-58	MW1-58	MW1-58	MW1-60
	Sample Name	SP-B89-S-24.0-171101	SP-B89-S-34.0-171101	SP-B89-S-6.5-171101	SP-B84-S-20.0-171012
	Sample Type	N	N	N	N
Analyte Name	**PAL**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	1490	10 U	21 U	26 U	23 U
1,1-Dichloroethane	40.7	10 U	21 U	26 U	23 U
1,1-Dichloroethene	45.7	10 U	21 U	26 U	23 U
1,2-Dichloroethane	23.1	18 U	36 U	46 U	<u>41</u> U
Chloroethane	40.7	<u>51</u> U	<u>100</u> U	<u>130</u> U	<u>120</u> U
Cis-1,2-Dichloroethene	78.1	**400**	68 J M	**8,500**	23 U
Tetrachloroethene	49.9	18 U Q	36 U Q	46 U Q	41 U
Trans-1,2-Dichloroethene	518	31 U	62 U	**92** J	70 U
Trichloroethene	25.2	18 J	**30** J	<u>46</u> U	<u>41</u> U
Vinyl Chloride	1.67	<u>100</u> U	<u>210</u> U	**9,800**	<u>230</u> UJ

Samples analyzed using EPA Method 8260C
Underlined values represent analytes not detected at or above the stated limit, which exceeds the PAL
Bolded values indicate that the reported concentration exceeds the PAL.
FD - Field Duplicate
P – Parent sample of field duplicate
N – Sample is not part of a duplicate pair.
PAL - Project Action Limit
U - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description).
J - The reported value is an estimated concentration.
U H - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description). / Sample was prepped or analyzed beyond the specified holding time.
U M - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description). / A matrix effect was present.
UJ - The analyte was not detected at or above the stated sample quantitation limit, which is an estimated value.
µg/kg – micrograms per kilogram

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	CL-B02			CL-B03			CL-B04	
	Sample Name	CL-B02-S-14.0-170711	CL-B02-S-20.0-170711	CL-B02-S-29.0-170711	CL-B03-S-18.0-170712	CL-B03-S-19.4-170712	CL-B03-S-37.0-170712	CL-B04-S-11.5-170712	CL-B04-S-19.5-170712
	Sample Type	N	N	N	N	N	N	N	N
Analyte	PAL (µg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	0.88 UJ	0.88 UJ	0.97 UJ	0.92 UJ	0.89 UJ	1.1 UJ	0.9 UJ	0.88 UJ
1,1-Dichloroethane	40.7	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U M	0.44 U
1,1-Dichloroethene	45.7	5.2	1 J	0.97 U M	0.92 U M	4.8	1.1 U	0.9 U	2.9 J
1,2-Dichloroethane	23.1	0.44 UJ	0.44 UJ	0.48 UJ	0.46 UJ	0.44 UJ	0.54 UJ	0.45 UJ	0.44 UJ
Chloroethane	40.7	0.44 UJ	0.44 UJ	0.48 UJ	0.46 UJ	0.44 UJ	0.54 UJ	0.45 UJ	0.44 UJ
Cis-1,2-Dichloroethene	78.1	**1,300** J Q	**450** J Q	46 Q	46 Q	**9,000**	13 Q	8.1 Q	**5,600**
Tetrachloroethene	49.9	0.88 U	0.88 U	0.97 U M	0.92 U	0.89 U	1.1 U	0.9 U	0.88 U
Trans-1,2-Dichloroethene	518	2 J	32 J	0.78 J	0.83 J	2 J	1.1 UJ	0.9 UJ	48 J
Trichloroethene	25.2	**7,400** J	**5,200** J	**3,600** J	**3,900**	**83** Q	**92** Q	**51** Q	**3,800** J
Vinyl Chloride	1.67	**44** J	**6.5** J	1.3 J	**3.8** J	**25** J	1.1 UJ	0.9 UJ	**5** J

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	CL-B04	CL-B05	CL-B06a		CL-B07			CL-B08
	Sample Name	CL-B04-S-29.0-170712	CL-B05-S-18.3-170712	CL-B06a-S-16.0-170713	CL-B06a-S-33.0-170713	CL-B07-S-20.0-170713	CL-B07-S-28.5-170713	CL-B07-S-4.0-170713	CL-B08-S-17.5-170713
	Sample Type	N	N	N	N	N	N	N	N
Analyte	PAL (µg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	1.2 UJ	0.98 U	0.85 U	0.9 U	0.82 U	0.85 U	0.76 U	0.87 U
1,1-Dichloroethane	40.7	0.59 U	0.98 U	0.85 U	0.9 U	0.82 U	0.85 U	0.76 U	0.87 U
1,1-Dichloroethene	45.7	13	0.98 U	0.85 U	0.9 U	4.8	3.1	0.76 U	2.2 J
1,2-Dichloroethane	23.1	0.59 UJ	0.98 U	0.85 U	0.9 U	0.82 U	0.85 U	0.76 U	0.87 U
Chloroethane	40.7	0.59 UJ	4.9 U	4.3 U	4.5 U	4.1 U	4.2 U	3.8 U	4.3 U
Cis-1,2-Dichloroethene	78.1	**6,600**	**110**	2	**88** J	**2,100**	**2,600**	0.76 U	**3,800** J
Tetrachloroethene	49.9	1.2 U	0.98 U	0.85 U	0.9 U	0.82 U	0.85 U	0.76 U	0.87 U
Trans-1,2-Dichloroethene	518	35 J	2.7	0.85 U	23 J	6.9	1.4	0.76 U	1.7 J
Trichloroethene	25.2	**6,900** J	**2,900**	0.85 U	0.9 U	0.82 U	0.85 U	0.76 U	0.87 U
Vinyl Chloride	1.67	**77** J	0.98 U	0.85 U	**25** J	**14**	**22**	0.76 U	**5.3** J

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	CL-B08	CL-B09	CL-B10		CL-B11	CL-B12		
	Sample Name	CL-B08-S-27.0-170713	CL-B09-S-13.0-170713	CL-B10-S-10.0-170714	CL-B10-S-21.0-170714	CL-B11-S-7.0-170714	CL-B12-S-17.5-170714	CL-B12-S-20.5-170714	CL-B12-S-31.5-170714
	Sample Type	N	N	N	N	N	N	N	P
Analyte	PAL (µg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	0.79 U	1 U	0.75 U	0.84 U	1.1 U	0.95 U	0.88 U	1.6 U
1,1-Dichloroethane	40.7	0.79 U	1 U	0.75 U	0.84 U	1.1 U	0.95 U	0.88 U	1.6 U
1,1-Dichloroethene	45.7	1.3 J	1 U	0.75 U	0.84 U	1.1 U	19	1.8	24
1,2-Dichloroethane	23.1	0.79 U	1 U	0.75 U	0.84 U	1.1 U	0.95 U	0.88 U	1.6 U
Chloroethane	40.7	3.9 U	5.1 U	3.8 U	4.2 U	5.3 U	4.8 U	4.4 U	7.9 U
Cis-1,2-Dichloroethene	78.1	**470** J	3.5 J	2.7 J	1.2	1.7	**9,500**	**690**	**2,000**
Tetrachloroethene	49.9	0.79 U	1 U	0.75 U	0.84 U	1.1 U	0.95 U	0.88 U	1.6 U
Trans-1,2-Dichloroethene	518	39 J	3.3 J	0.75 U	0.84 U	1.1 U	19	81	25
Trichloroethene	25.2	4.8 J	1.8 J	1.3 J	0.85	1.1 U	1.7	**1,900**	**5,500**
Vinyl Chloride	1.67	**42** J	**2.1** J	0.75 U	0.84 U	1.1 U	**36**	**5.6**	**27**

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	CL-B12	CL-B13	CL-B14b					CL-B15
	Sample Name	FD-170714-01	CL-B13-S-11.5-170717	CL-B14b-S-18.0-170717	CL-B14b-S-21.0-170717	CL-B14b-S-4.0-170717	CL-B14b-S-9.0-170717	FD-170717-01	CL-B15-S-23.0-170717
	Sample Type	FD	N	N	N	N	P	FD	N
Analyte	PAL (µg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	1.5 U	0.98 U	110 U	0.86 U	0.87 U	1.2 U	1.7 U	0.93 U
1,1-Dichloroethane	40.7	1.5 U	0.98 U	110 U	0.86 U	0.87 U	1.2 U	2.5	0.93 U
1,1-Dichloroethene	45.7	15	0.98 U	**120**	16	0.87 U	1.2 U	1.7 U	0.93 U
1,2-Dichloroethane	23.1	1.5 U	0.98 U	110 U	0.86 U	0.87 U	1.2 U	1.7 U	0.93 U
Chloroethane	40.7	7.7 U	4.9 U	560 U	4.3 U	4.4 U	6.2 U	8.7 U	4.6 U
Cis-1,2-Dichloroethene	78.1	**1,900**	11	**42,000** J	**31,000**	5.1	32	74	10
Tetrachloroethene	49.9	1.5 U	0.98 U	110 U	0.86 U	0.87 U	1.2 U	1.7 U	0.93 U
Trans-1,2-Dichloroethene	518	18	0.98 U	**770**	130	0.87 U	1.2 U	1.7 U	0.93 U
Trichloroethene	25.2	**5,000**	0.98 U	110 U	2.5	1.5	1.7	2.6	0.93 U
Vinyl Chloride	1.67	**17**	**6.7**	**10,000**	**5,100**	1.1	**11**	**18**	**3.4**

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	**CL-B16**	**CL-B17**	**CL-B18a**					**CL-B19**
	Sample Name	**CL-B16-S-12.5-170718**	**CL-B17-S-20.0-170718**	**CL-B18a-S-14.5-170718**	**CL-B18a-S-18.0-170718**	**CL-B18a-S-21.5-170718**	**CL-B18a-S-22.3-170718**	**CL-B18a-S-33.0-170718**	**CL-B19-S-23.0-170719**
	Sample Type	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Analyte	**PAL (µg/kg)**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	1,490	**2,000**	0.83 U	1.3 U	0.9 U	0.99 U	110 U	0.85 U	0.422 UJ
1,1-Dichloroethane	40.7	**2,100**	1.6	1.3 U	0.9 U	0.99 U	110 U	0.85 U	0.422 UJ
1,1-Dichloroethene	45.7	**110**	0.83 U	1.3 U	0.9 U	4.2	110 U	0.85 U	0.422 UJ
1,2-Dichloroethane	23.1	**25**	0.83 U	1.3 U	0.9 U	0.99 U	110 U	0.85 U	0.422 UJ
Chloroethane	40.7	**120**	4.1 U	6.5 U	4.5 U	4.9 U	530 U	4.2 U	0.422 UJ
Cis-1,2-Dichloroethene	78.1	45	28	19	15	**27,000**	**47,000**	**1,600**	1.51 J
Tetrachloroethene	49.9	1.1 U	0.83 U	1.3 U	0.9 U	0.99 U	110 U	0.85 U	0.422 UJ
Trans-1,2-Dichloroethene	518	1.1 U	0.83 U	1.3 U	0.9 U	37	**550**	4.6	0.422 UJ
Trichloroethene	25.2	19	0.83 U	1.3 U	0.9 U	**9,000**	**6,000**	1.3	0.422 UJ
Vinyl Chloride	1.67	**8.7**	**2.4**	**5.7**	0.9 U	**76**	**3,100**	**26**	1.19 J

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (μg/kg)

Location Name		CL-B19	CL-B20			CL-B21		CL-B22	CL-B23
Sample Name		CL-B19-S-38.0-170719	CL-B20-S-25.0-170719	CL-B20-S-28.3-170719	CL-B20-S-31.5-170719	CL-B21-S-12.0-170720	CL-B21-S-21.5-170720	CL-B22-S-18.5-170720	CL-B23-S-13.5-170720
Sample Type		N	N	N	N	N	N	N	N
Analyte	PAL (μg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	0.402 UJ	0.381 UJ	0.397 UJ	0.479 UJ	0.521 U	0.452 U	0.467 U	0.536 U
1,1-Dichloroethane	40.7	0.402 UJ	0.381 UJ	0.397 UJ	0.479 UJ	0.521 U	0.594 J	0.467 U	0.536 U
1,1-Dichloroethene	45.7	0.402 UJ	0.343 J	1.64 J	0.479 UJ	0.521 U	0.452 U	0.467 U	6.05
1,2-Dichloroethane	23.1	0.402 UJ	0.381 UJ	0.397 UJ	0.479 UJ	0.446 J	0.452 U	0.467 U	0.536 U
Chloroethane	40.7	0.402 UJ	0.381 UJ	0.397 UJ	0.479 UJ	9.32	0.452 U	0.467 U	0.536 U
Cis-1,2-Dichloroethene	78.1	16.9 J	**282** J	**1,040** J	**261** J	3.33	2.26	4.11	**1,590** E
Tetrachloroethene	49.9	0.402 UJ	0.381 UJ	0.397 UJ	0.479 UJ	0.521 U	0.452 U	2.75	0.536 U
Trans-1,2-Dichloroethene	518	2.38 J	3.3 J	16.9 J	3.08 J	0.521 U	0.452 U	3.33	2.16
Trichloroethene	25.2	0.947 J	0.229 J	0.474 J	0.267 J	0.521 U	0.441 J	**72.2**	0.536 U
Vinyl Chloride	1.67	1.49 J	**6.81** J	**57.1** J	**9.87** J	**1.7**	0.945	**1.91**	**54.9**

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (μg/kg)

	Location Name	CL-B23	CL-B24	CL-B25		CL-B26a			
	Sample Name	CL-B23-S-18.0-170720	CL-B24-S-15.5-170720	CL-B25-S-14.0-170720	CL-B25-S-29.0-170720	CL-26a-S-19.0-170721	CL-26a-S-26.0-170721	FD-170721-01	CL-26a-S-9.0-170721
	Sample Type	N	N	N	N	N	P	FD	N
Analyte	**PAL (μg/kg)**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	1,490	0.38 UJ	0.431 U	0.448 U	0.447 U	0.44 U	0.489 U	0.485 U	0.755 U
1,1-Dichloroethane	40.7	0.38 UJ	0.431 U	0.448 U	0.447 U	0.44 U	0.489 U	0.485 U	0.755 U
1,1-Dichloroethene	45.7	0.598 J	0.431 U	0.448 U	1.6	0.796 J	0.372 J	0.418 J	0.755 U
1,2-Dichloroethane	23.1	0.38 UJ	0.431 U	0.26 J	0.403 J	0.309 J	0.705 J	0.485 U	0.603 J
Chloroethane	40.7	0.38 UJ	0.234 J	0.233 J	0.242 J	0.248 J	0.45 J	0.485 U	0.755 U
Cis-1,2-Dichloroethene	78.1	**244** J	13.4	1.03 J	**198** E	**421** E	**139** E	**151** E	1.4 J
Tetrachloroethene	49.9	0.38 UJ	0.431 U	0.448 U	0.447 U	0.44 U	0.489 U	0.485 U	0.755 U
Trans-1,2-Dichloroethene	518	0.258 J	0.753 J	3.09	21.2	6.36	31.8 J	30	0.755 U
Trichloroethene	25.2	0.38 UJ	0.431 U	0.448 U	0.447 U	2.8	13.8	20.5	0.755 U
Vinyl Chloride	1.67	**7.59** J	**4.46**	**11.9** J	**16**	**3.17**	**35.3**	**30.2**	0.755 U

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (μg/kg)

	Location Name	CL-B27	CL-B28	CL-B29a		CL-B30a		CL-B31	
	Sample Name	CL-B27-S-10.0-170721	CL-B28-S-9.0-170721	CL-B29a-S-2.0-170724	CL-B29a-S-21.0-170724	CL-B30a-S-10.5-170724	CL-B30a-S-21.0-170724	CL-B31-S-11.5-170724	CL-B31-S-19.0-170724
	Sample Type	N	N	N	N	N	N	N	N
Analyte	**PAL (μg/kg)**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	1,490	0.425 U	0.594 U	0.591 U	0.453 U	1 UJ	0.427 U	0.697 U	0.41 U
1,1-Dichloroethane	40.7	0.425 U	0.594 U	0.591 U	1.36	0.7 J	0.427 U	0.697 U	0.41 U
1,1-Dichloroethene	45.7	0.425 U	0.594 U	0.591 U	0.254 J	1 UJ	0.427 U	0.697 U	0.383 J
1,2-Dichloroethane	23.1	0.425 U	0.594 U	0.591 U	0.499 J	1 UJ	0.427 U	0.697 U	0.41 U
Chloroethane	40.7	0.307 J	0.43 J	0.591 U	0.453 U	1 UJ	0.427 U	0.697 U	0.41 U
Cis-1,2-Dichloroethene	78.1	0.502 J	0.967 J	0.681 J	2.73	1.72 J	0.292 J	0.967 J	**196** J
Tetrachloroethene	49.9	0.425 U	0.594 U	0.591 U	0.816 J	1 UJ	0.427 U	0.697 U	0.41 U
Trans-1,2-Dichloroethene	518	0.425 U	0.594 U	0.591 U	2.33	0.7 J	0.427 U	0.697 U	10.5
Trichloroethene	25.2	0.213 J	0.594 U	0.591 U	10.3	0.96 J	0.427 U	0.697 U	1.28
Vinyl Chloride	1.67	0.307 J	0.597 J	0.411 J	1.64	1 UJ	0.427 U	0.477 J	**8.75**

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	CL-B32	CL-B33	CL-B34	CL-B35		CL-B36	CL-B37	CL-B38c
	Sample Name	CL-B32-S-15.0-170724	CL-B33-S-3.5-170724	CL-B34-S-18.0-170725	CL-B35-S-18.0-170725	CL-B35-S-20.5-170725	CL-B36-S-15.5-170725	CL-B37-S-15.0-170726	CL-B38C-S-4.0-170726
	Sample Type	N	N	N	N	N	N	N	N
Analyte	PAL (µg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	0.514 U	0.412 U	0.502 U	0.563 U	0.481 U	0.435 U	0.95 U	68 UJ
1,1-Dichloroethane	40.7	0.514 U	0.412 U	0.502 U	0.563 U	0.481 U	0.435 U	0.48 U	68 UJ
1,1-Dichloroethene	45.7	3.4	0.412 U	1.96	3.1	0.481 U	0.313 J	6.3	68 UJ
1,2-Dichloroethane	23.1	0.514 U	0.412 U	0.502 U	0.563 U	0.481 U	0.435 U	0.48 U	120 UJ
Chloroethane	40.7	0.514 U	0.412 U	0.502 U	0.563 U	0.481 U	0.435 U	0.43 J	340 UJ
Cis-1,2-Dichloroethene	78.1	814 J	0.579 J	489 E	**721** E	**89.7**	**87.6**	**2,100** J	68 UJ
Tetrachloroethene	49.9	0.514 U	0.412 U	0.502 U	0.563 U	0.481 U	0.435 U	0.95 U	120 UJ
Trans-1,2-Dichloroethene	518	27.4	0.412 U	49.1	1.23	0.481 U	1.05	99	210 UJ
Trichloroethene	25.2	0.514 U	0.412 U	1.64	0.563 U	0.481 U	0.435 U	**11,000** J	**93** J
Vinyl Chloride	1.67	**143** J	0.223 J	**12.8**	**22**	**74.7**	**3.39**	**23**	680 UJ

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	CL-B39	SP-B01			SP-B01B	SP-B40	
	Sample Name	CL-B39-S-7.0-170726	SP-B01-S-13.5-170711	SP-B01-S-17.5-170711	SP-B01-S-28.0-170711	SP-B01b-S-8.0-170807	SP-B40-S-13.0-170726	SP-B40-S-20.0-170726
	Sample Type	N	N	N	N	N	N	N
Analyte	**PAL (µg/kg)**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	1,490	0.95 U	140 J	26 U	0.87 UJ	5,400 U	26 UJ	0.91 U
1,1-Dichloroethane	40.7	0.48 U	20 U	26 U	0.43 U	5,400 U	26 UJ	0.49 J
1,1-Dichloroethene	45.7	0.95 U	**2,300**	160	0.87 U	**25,600**	26 UJ	0.91 U
1,2-Dichloroethane	23.1	0.48 U	34 U	46 U	0.43 UJ	5,400 U	46 UJ	0.46 U
Chloroethane	40.7	1.7 J	98 U	130 U	0.43 UJ	5,400 U	**180** J	2.7
Cis-1,2-Dichloroethene	78.1	1.2 J	**1,100,000**	**160,000**	63 Q	**5,660,000** E	**2,000** J	5.7
Tetrachloroethene	49.9	0.95 U	**17,000**	**2,200**	0.82 J	**69,100**	46 UJ	0.91 U
Trans-1,2-Dichloroethene	518	0.95 U	**19,000**	**1,800**	0.99 J	**55,900**	79 UJ	0.91 U
Trichloroethene	25.2	0.95 U	**83,000,000** B	**1,600,000** J	**7,500** B	**59,000,000** E	46 UJ	0.63 J
Vinyl Chloride	1.67	**1.7** J	200 U	260 U	0.58 J	**360,000**	260 UJ	**3.4**

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (μg/kg)

	Location Name	SP-B40	SP-B41	SP-B42			SP-B43		SP-B44
	Sample Name	SP-B40-S-7.0-170726	SP-B41-S-8.0-170726	SP-B42-S-16.0-170727	SP-B42-S-20.0-170727	SP-B42-S-7.5-170727	SP-B43-S-10.0-170727	SP-B43-S-12.0-170727	SP-B44-S-10.5-170727
	Sample Type	N	N	N	N	N	N	N	N
Analyte	PAL (μg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	140 J	0.86 U	0.98 U	0.92 U	1.1 U	0.9 U	1.4 U	0.91 U
1,1-Dichloroethane	40.7	26 UJ	3.5	0.81 J	0.46 U	0.67 J	1.1	0.65 J	0.35 J
1,1-Dichloroethene	45.7	7.9 J	0.86 U	2.1 J	0.92 U	2.8 J	4.3 J	1.5 J	1.1 J
1,2-Dichloroethane	23.1	0.54 U	0.43 U	0.49 U	0.46 U	0.54 U	0.45 U	0.72 U	0.45 U
Chloroethane	40.7	**340** J	12	4	0.64 J	3.4	0.74 J	3.8	1.6 J
Cis-1,2-Dichloroethene	78.1	26 J	3.5	**6,800** H	2.4 J	**8,300** J	**9,800** J	**2,900** J	**2,300** J
Tetrachloroethene	49.9	44 J	0.86 U	0.98 U	0.92 U	1.6 J	0.9 U	1.4 U	0.91 U
Trans-1,2-Dichloroethene	518	1.1 U	0.66 J	9.4	0.92 U	30	29	6.5	6.3
Trichloroethene	25.2	**110** J	0.75 J	**6,300** J	2.4 J	**14,000** J	**5,300** J	**2,800** J	**1,800** J
Vinyl Chloride	1.67	**3.3** J	**2.7**	**31**	0.99 J	**56**	**1,600** J	**48**	**84**

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	**SP-B45**		**SP-B46**	**SP-B47**	**SP-B48b**		**SP-B50**	
	Sample Name	**SP-B45-S-13.5-170727**	**SP-B45-S-18.0-170727**	**SP-B46-S-13.0-170728**	**SP-B47-S-14.0-170728**	**SP-B48b-S-11.0-170728**	**SP-B48b-S-6.0-170728**	**SP-B50-S-12.0-170731**	**SP-B50-S-16.5-170731**
	Sample Type	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Analyte	**PAL (µg/kg)**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	1,490	0.99 U	1.1 U	0.88 U	0.82 U	1 U	0.93 U	0.92 U	0.88 U
1,1-Dichloroethane	40.7	0.5 J	0.61 J	2.6	2.6	0.77 J M	3.5	0.21 J M	0.44 U
1,1-Dichloroethene	45.7	0.55 J	1.1 U	0.88 U	0.82 U	1.7 J	5	2.7 J	0.88 U
1,2-Dichloroethane	23.1	0.49 U	0.57 U	0.44 U	0.41 U	0.52 U	0.25 J	0.46 U	0.13 J
Chloroethane	40.7	3.3	3.8	120 U	37 J	0.52 U Q	0.46 U Q	0.46 UJ	0.44 UJ
Cis-1,2-Dichloroethene	78.1	**2,400** J	**2,600** J	65	33	**11,000** J	**18,000** J	**1,400** J	**1,500** J
Tetrachloroethene	49.9	0.99 U	1.1 U	0.88 U	0.82 U	1 U	0.93 U	0.92 U	0.88 U
Trans-1,2-Dichloroethene	518	7.1	6	4.1	4.1	20	74	6.9	1.8
Trichloroethene	25.2	6.7	9.1	0.88 U	0.82 U	15	0.93 U M	**100**	**46**
Vinyl Chloride	1.67	**45**	**24**	**860**	**100**	**4,400** J	**9,100** J	**130**	**15**

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	SP-B51		SP-B52	SP-B53				SP-B54
	Sample Name	SP-B51-S-13.0-170731	SP-B51-S-17.0-170731	SP-B52-S-12.0-170731	SP-B53-S-10.0-170731	SP-B53-S-24.0-170731	SP-B53-S-32.0-170731	SP-B53-S-33.5-170731	SP-B54-S-17.0-170801
	Sample Type	N	N	N	N	N	N	N	N
Analyte	PAL (µg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	0.94 U	0.97 U	0.96 U	0.91 U	0.94 U M	0.73 U	0.99 U	0.98 UJ
1,1-Dichloroethane	40.7	0.47 U	0.49 U	0.48 U	0.46 U	0.47 U	0.36 U	0.5 U	0.49 UJ
1,1-Dichloroethene	45.7	0.94 U	0.97 U	0.93 J	0.91 U	1.4 J	0.73 U	0.82 J M	0.98 UJ
1,2-Dichloroethane	23.1	0.47 U	0.49 U	0.14 J	0.46 U	0.47 U	0.36 U	0.5 U M	0.49 UJ
Chloroethane	40.7	0.47 UJ	0.49 UJ	0.48 UJ	0.46 UJ	0.47 UJ	0.36 UJ	0.5 UJ	0.49 UJ
Cis-1,2-Dichloroethene	78.1	42	2.8	**480** J	55 J	140 J	61 J	**140** J	9 U
Tetrachloroethene	49.9	0.94 U	0.97 U	0.96 U	0.91 U	11	0.73 U	0.99 U M	0.98 UJ
Trans-1,2-Dichloroethene	518	0.94 U	0.97 U	8.1	0.91 U	18	0.73 U M	1.6 J	0.71 J
Trichloroethene	25.2	20	1.2 J	**1,300** J	**200** J	**1,400** J	**450** J	**1,200** J	2.4 J
Vinyl Chloride	1.67	**2.7**	**4.3**	**15**	0.63 J M	**3.3** M	0.89 J	**2.7**	0.88 J

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (μg/kg)

	Location Name	**SP-B54**		**SP-B55**			**SP-B56**		**SP-B57**
	Sample Name	**SP-B54-S-35.0-170801**	**SP-B54-S-7.0-170801**	**FD-170801-01**	**SP-B55-S-9.0-170801**	**SP-B55-S-33.0-170801**	**SP-B56-S-10.0-170801**	**SP-B56-S-27.0-170801**	**SP-B57-S-10.0-170802**
	Sample Type	**N**	**N**	**FD**	**P**	**N**	**N**	**N**	**N**
Analyte	**PAL (μg/kg)**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	1,490	15 U	2,400 U	140 U	130 U	0.95 U Q	140 U	140 U	0.94 U H
1,1-Dichloroethane	40.7	15 U	2,400 U	140 UJ	130 UJ	0.48 U Q	140 UJ	140 UJ	0.26 J H
1,1-Dichloroethene	45.7	15 U	**9,800** M	19	5.3	0.95 U	1.8 J	9	0.94 UJ
1,2-Dichloroethane	23.1	26 U	4,200 U	240 U	220 U	0.48 U Q	240 U	250 U	0.16 J
Chloroethane	40.7	74 UJ	12,000 UJ	0.52 UJ	0.48 UJ	0.48 UJ	0.54 UJ	0.52 UJ	0.47 U H
Cis-1,2-Dichloroethene	78.1	58 J	**3,600,000** H	**10,000**	**11,000**	75 B	**3,500**	**5,000**	1.9 U
Tetrachloroethene	49.9	26 U	**4,200** U	1 UJ	0.95 UJ	0.95 U Q	5.2 J	1 UJ	0.94 U H
Trans-1,2-Dichloroethene	518	44 U	**59,000**	31	16	1.2 J	100 J	60	0.5 J H
Trichloroethene	25.2	26 U	**7,200**	**2,400**	**1,600**	18 Q	240 U	**2,800**	0.32 J H
Vinyl Chloride	1.67	150 U	**610,000**	**150**	**58**	**13**	**6,600**	**130**	**18** H

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (μg/kg)

	Location Name	SP-B57	SP-B58			SP-B59		
	Sample Name	SP-B57-S-29.0-170802	SP-B58-S-21.0-170802	SP-B58-S-37.0-170802	SP-B58-S-39.5-170802	SP-B59-S-21.0-170802	SP-B59-S-29.8-170802	SP-B59-S-5.0-170802
	Sample Type	N	N	N	N	N	N	N
Analyte	**PAL (μg/kg)**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	1,490	0.86 U H	1 U	0.78 U	1.9 U	0.86 U	0.9 U	1 UJ
1,1-Dichloroethane	40.7	0.43 U H	0.51 U	0.39 U	0.97 U	0.43 U	0.45 U	0.5 UJ
1,1-Dichloroethene	45.7	0.72 J	1 UJ	0.91 J	1.9 U	0.86 U	0.9 U	1 UJ
1,2-Dichloroethane	23.1	0.43 UJ	0.51 UJ	0.39 UJ	0.97 UJ	0.43 UJ	0.45 UJ	0.5 UJ
Chloroethane	40.7	0.43 U H	0.51 U	0.39 U	0.97 U	0.43 U	0.45 U	0.5 UJ
Cis-1,2-Dichloroethene	78.1	49 H	7.4	**950** J	5.1	0.6 U	1.1 U	2.6 J
Tetrachloroethene	49.9	0.86 U H	1 U	1.3 J	1.9 U	0.86 U	0.9 U	31 J
Trans-1,2-Dichloroethene	518	2.1 H	1 U	3.6	1.9 U	0.86 U	0.9 U	8 J
Trichloroethene	25.2	0.44 J H	4.3	**2,100** J	2.5 J	1.6 J	6.9	2.1 J
Vinyl Chloride	1.67	**4.8** H	1.4 J M	**10** J	1 J	0.37 J	0.9 UJ	**1.7** J

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (μg/kg)

	Location Name	SP-B60			SP-B61		SP-B62		
	Sample Name	SP-B60-S-17.0-170802	SP-B60-S-23.5-170802	SP-B60-S-7.5-170802	SP-B61-S-18.0-170803	SP-B61-S-23.5-170803	SP-B62-S-16.0-170803	SP-B62-S-24.0-170803	SP-B62-S-26.0-170804
	Sample Type	N	N	N	N	N	N	N	N
Analyte	PAL (μg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	0.92 U	0.8 U	1.4 U	21 U R	18 U R	20 U R	17 U R	0.415 U
1,1-Dichloroethane	40.7	0.46 U	0.4 U	0.72 U	21 U R	18 U R	20 U R	17 U R	0.415 U
1,1-Dichloroethene	45.7	0.92 U	0.8 U	1.4 U	21 U R	18 U R	20 U R	17 U R	0.415 U
1,2-Dichloroethane	23.1	0.46 U Q	0.4 U Q	0.72 UJ	**38** U R	**31** U R	35 U R	**29** U R	0.415 U
Chloroethane	40.7	0.46 U	0.4 U	0.72 U	**110** U R	**89** U R	**100** U R	**84** U R	0.415 U
Cis-1,2-Dichloroethene	78.1	1.5 J	1.1 J	1.6 U	**160** J	18 U R	**260** J	17 U R	1.08
Tetrachloroethene	49.9	0.92 U	0.8 U	1.4 U	38 U R	31 U R	35 U R	29 U R	0.415 U
Trans-1,2-Dichloroethene	518	0.92 U	0.8 U	1.4 U M	36 J	53 U R	96 J	50 U R	0.415 U
Trichloroethene	25.2	1.6 J	6.5	1.4 J	**35** J	**180** J	**780** J	**230** J	2.16
Vinyl Chloride	1.67	0.92 U Q	0.37 J M Q	0.79 J	**210** U R	**180** U R	**200** U R	**170** U R	0.415 U

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	SP-B62	SP-B63		SP-B64	SP-B65C	SP-B66	
	Sample Name	SP-B62-S-7.0-170803	SP-B63-S-18.5-170804	SP-B63-S-24.0-170804	SP-B64-S-12.0-170804	SP-B65c-S-8.0-170806	SP-B66-S-10.5-170806	SP-B66-S-9.0-170806
	Sample Type	N	N	N	N	N	N	N
Analyte	PAL (µg/kg)	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	3.3 U	0.468 U	0.444 U	0.538 U	0.544 U	0.457 U	0.473 U
1,1-Dichloroethane	40.7	0.87 J	0.468 U	0.444 U	0.538 U	0.544 U	0.457 U	0.473 U
1,1-Dichloroethene	45.7	3.3 U	0.468 U	0.573 J	0.538 U	0.294 J	0.457 U	0.473 U
1,2-Dichloroethane	23.1	0.99 J	0.468 U	0.444 U	0.538 U	0.544 U	0.457 U	0.473 U
Chloroethane	40.7	1.6 U	0.468 U	0.444 U	0.538 U	0.544 U	0.229 J	0.473 U
Cis-1,2-Dichloroethene	78.1	68	9.63	**321** E	**199** E	**319** E	**180** E	**84**
Tetrachloroethene	49.9	3.3 U	0.468 U	0.37 J	0.538 U	0.544 U	0.457 U	0.473 U
Trans-1,2-Dichloroethene	518	7.4	0.468 U	2.4	1.7	3.72	1.58	0.95
Trichloroethene	25.2	2.4 J	12.2	**1,700** E	**513** E	**540** E	20.2	21.4
Vinyl Chloride	1.67	**8.3** J	0.586 J	**2.08**	**1.91**	**3.86**	**13.9**	**6.31**

Table D-3. OU 1 2017 Target cVOCs in Direct Push Soil Samples (µg/kg)

	Location Name	SP-B67		SP-B68			SP-B69		
	Sample Name	SP-B67-S-12.5-170806	SP-B67-S-24.0-170806	SP-B68-S-0.5-170806	SP-B68-S-12.5-170806	SP-B68-S-9.5-170806	FD-0-170806-02	SP-B69-S-11.5-170806	SP-B69-S-15.0-170806
	Sample Type	N	N	N	N	N	FD	P	N
Analyte	PAL (µg/kg)	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	1,490	0.473 U	0.523 U	0.777 U	0.468 U	0.504 U	0.478 U	0.526 U	0.549 U
1,1-Dichloroethane	40.7	0.473 U	0.523 U	0.777 U	0.468 U	32.4	0.478 U	0.526 U	0.549 U
1,1-Dichloroethene	45.7	0.473 U	0.523 U	0.777 U	0.468 U	0.504 U	0.487 J	0.326 J	0.549 U
1,2-Dichloroethane	23.1	0.473 U	0.523 U	0.777 U	0.468 U	0.302 J	0.478 U	0.526 U	0.549 U
Chloroethane	40.7	0.958	0.523 U	0.777 U	0.468 U	**90.8**	10	8.38	2.29
Cis-1,2-Dichloroethene	78.1	32.5	3.36	7.19	**111** E	5.45	**395** E	**396** E	**168** E
Tetrachloroethene	49.9	0.473 U	0.523 U	0.777 U	0.468 U	0.504 U	0.478 U	0.526 U	0.549 U
Trans-1,2-Dichloroethene	518	1.13	0.523 U	0.777 U	2.21	3.47	5.67	5.57	2.93
Trichloroethene	25.2	18.5	9.78	21	10.9	11.9	**129** E	11.5	16.3
Vinyl Chloride	1.67	**23.2**	**3.17**	**4.68**	**39.5**	**3.46**	**69.3**	**66.9**	**18.2**

Samples analyzed using EPA Method 8260C

FD - Field Duplicate

PAL - Project Action Limit µg/kg – micrograms per kilogram

J - The reported value is an estimated concentration.

B - The analyte was found in an associated blank, as well as in the sample.

M - A matrix effect was present.

H - Sample was prepped or analyzed beyond the specified holding time.

Q - One or more quality control criteria failed.

E - The reported value exceeded the instrument calibration range, so the concentration is estimated.

P – Parent sample of field duplicate.

N – Sample is not part of a duplicate pair.

U - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule, so this definition is different than the lab description).

UJ - The analyte was not detected at the stated sample quantitation limit, which is an estimated value.

J H - The reported value is an estimated concentration. / Sample was prepped or analyzed beyond the specified holding time.

U R - The reported value is unusable, rejected. Analyte may or may not be present.

U H - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule, so this definition is different than the lab description). / Sample was prepped or analyzed beyond the specified holding time.

U M - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule, so this definition is different than the lab description). / A matrix effect was present.

Underlined values represent analytes not detected at or above the stated limit, which exceeds the PAL.

Bolded values indicate that the reported concentration exceeds the PAL.

Table D-4. OU 1 2017 SVOCs in Soil (µg/kg)

Analyte Name	Screening Level (µg/kg)	Screening Level Source	CL-B18a		CL-B21		SP-B01B		SP-B62	
			CL-B18a-S-18.0-170718		CL-B21-S-12.0-170720		SP-B01b-S-8.0-170807		SP-B62-S-7.0-170803	
			N		N		N		N	
			Result		Result		Result		Result	
1,2,4-Trichlorobenzene	29.4	A	19	U	19	U	190	U J	2,300	U J
1,2-Dichlorobenzene	399.4	A	38	U	38	U	370	U J	4,600	U J
1,3-Dichlorobenzene	NA	NE	19	U	19	U	190	U J	2,300	U J
1,4-Dichlorobenzene	67.7	A	19	U	19	U	190	U J	2,300	U J
1-Methylnaphthalene	34,483	B	2,000		20	J	190	U J	8,600	
2,2'-Oxybis(1-Chloropropane)	14,286	B	150	U	150	U	1,500	U J	18,000	U J
2,4,5-Trichlorophenol	1,507	A	150	U	150	U	1,500	U J	18,000	U J
2,4,6-Trichlorophenol	2.66	A	150	U	150	U	1,500	U J	18,000	U J
2,4-Dichlorophenol	10.4	A	38	U	38	U	370	U J	4,600	U J
2,4-Dimethylphenol	79.3	A	38	U	38	U	370	U J	4,600	U J
2,4-Dinitrophenol	9.17	A	510	U	500	U	5,000	U J	61,000	U J
2,4-Dinitrotoluene	0.11	A	150	U	150	U	1,500	U J	18,000	U
2,6-Dinitrotoluene	0.021	A	150	U	150	U	1,500	U J	18,000	U
2-Chloronaphthalene	6,400,000	C	19	U	19	U	190	U J	2,300	U
2-Chlorophenol	27	A	150	U	150	U	1,500	U J	18,000	U J
2-Methylnaphthalene	320,000	C	2,900		15	J	370	U J	10,000	
2-Methylphenol	151.1	A	150	U	150	U	1,500	U J	18,000	U J
2-Nitroaniline	800,000	C	64	U	63	U	620	U J	7,700	U
2-Nitrophenol	NA	NE	150	U	150	U	1,500	U J	18,000	U J
3,3-Dichlorobenzidine	0.197	A	310	U Q	300	U Q	3,000	U J	37,000	U
3- And 4-Methylphenol	4,000,000	C	24	J	38	U	370	U J	4,600	U J
3-Nitroaniline	NA	NE	150	U	150	U	1,500	U J	18,000	U
4,6-Dinitro-2-Methylphenol	NA	NE	310	U Q	300	U Q	3,000	U J	37,000	U J
4-Bromophenyl-Phenylether	NA	NE	150	U	150	U	1,500	U J	18,000	U
4-Chloro-3-Methylphenol	NA	NE	150	U	150	U	1,500	U J	18,000	U J
4-Chloroaniline	0.0772	A	1,300	U	1,300	U	12,000	U J	150,000	U J
4-Chlorophenyl-Phenylether	NA	NE	150	U	150	U	1,500	U J	18,000	U
4-Nitroaniline	NA	NE	64	U	63	U	620	U J	7,700	U
4-Nitrophenol	NA	NE	1,000	U	1,000	U	10,000	U J	120,000	U J
Acenaphthene	4,977	A	4,700		17	J	190	U J	**8,900**	
Acenaphthylene	NA	NE	110		19	U	190	U J	2,300	U
Anthracene	114,142	A	3,600		19	U	190	U J	8,400	

Table D-4. OU 1 2017 SVOCs in Soil (µg/kg)

Analyte Name	Screening Level (µg/kg)	Screening Level Source	CL-B18a		CL-B21		SP-B01B		SP-B62	
			CL-B18a-S-18.0-170718		CL-B21-S-12.0-170720		SP-B01b-S-8.0-170807		SP-B62-S-7.0-170803	
			N		N		N		N	
			Result		Result		Result		Result	
Benzo[A]Anthracene	42.89	A	**7,500**		19	U	**75**	J	**8,500**	
Benzo[A]Pyrene	116.3	A	**3,400**		38	U	370	U J	**5,100**	J
Benzo[B]Fluoranthene	147.5	A	**6,400**		19	U	190	U J	**4,600**	
Benzo[G,H,I]Perylene	NA	NE	590		38	U	370	U J	4,600	UJ
Benzo[K]Fluoranthene	1,475	A	**2,400**	M	38	U	370	U J	4,600	U M
Benzoic Acid	18,385	A	2,600	U M	2,500	U	25,000	U J	310,000	U J
Benzyl Alcohol	8,000,000	C	150	U	150	U	1,500	U J	18,000	U J
Bis(2-Chloroethoxy)Methane	NA	NE	150	U	150	U	1,500	U J	18,000	U J
Bis(2-Chloroethyl)Ether	0.0144	A	150	U	150	U	1,500	U J	18,000	U J
Bis(2-Ethylhexyl)Phthalate	668.5	A	510	U	500	U	5,000	U J	61,000	U
Butylbenzylphthalate	646	A	150	U Q	150	U Q	1,500	U J	18,000	UJ
Carbazole	NA	NE	1,300		150	U	1,500	U J	18,000	U J
Chrysene	4,774	A	**7,200**		38	U	370	U J	**12,000**	
Di-N-Butylphthalate	2,966	A	150	U	150	U	1,500	U J	18,000	U
Di-N-Octylphthalate	13,312,046	A	770	U	760	U	7,500	U J	92,000	U
Dibenz[A,H]Anthracene	21.4	A	**220**		38	U	370	U J	4,600	UJ
Dibenzofuran	80,000	C	3,600		150	U	1,500	U J	18,000	U
Diethylphthalate	4,719	A	510	U	500	U	5,000	U J	61,000	U
Dimethyl Phthalate	NA	NE	150	U	150	U	1,500	U J	18,000	U
Fluoranthene	31,605	A	**42,000**		19	U	130	J	14,000	
Fluorene	5,116	A	**5,500**		12	J	190	U J	**12,000**	
Hexachlorobenzene	43.9	A	19	U	19	U	190	U J	2,300	U
Hexachlorobutadiene	30.3	A	38	U	38	U	370	U J	4,600	U J
Hexachlorocyclopentadiene	9,613.76	A	64	U	63	U	620	U J	7,700	U J
Hexachloroethane	2.26	A	150	U	150	U	1,500	U J	18,000	U J
Indeno[1,2,3-Cd]Pyrene	416	A	**960**		19	U	190	U J	2,300	U J
Isophorone	15.4	A	150	U	150	U	1,500	U J	18,000	U J
N-Nitrosodimethylamine	19.6	B	1,300	U	1,300	U	12,000	U J	150,000	U J
N-Nitrosodinpropylamine	3.88E-03	A	150	U	150	U	1,500	U J	18,000	U J
N-Nitrosodiphenylamine	28.2	A	38	U	38	U	370	U J	4,600	U
Naphthalene	236.4	A	**1,700**		19	U	190	U J	**21,000**	J
Nitrobenzene	6.49	A	150	U	150	U	1,500	U J	18,000	U J
Pentachlorophenol	0.879	A	310	U	300	U	3,000	U J	37,000	U J
Phenanthrene	NA	NE	34,000		38	U	370	U J	46,000	J
Phenol	757.12	A	71	J	150	U	520	J	18,000	U J
Pyrene	32,774	A	28,000		38	U	370	U J	19,000	J

Notes:

Samples analyzed using EPA Method 8270D.

Screening levels based on the lowest MTCA Method B value shown in Ecology's July 2015 CLARC table. Values used as presented by Ecology without recalculation.

A - Screening level source is "Protective of Groundwater Saturated".

B - Screening level source is "Method B Cancer".

C - Screening level source is "Method B Non Cancer".

N – Sample is not part of a duplicate pair.

Underlined values represent analytes not detected at or above the stated limit, which exceeds the PAL.

Bolded values indicate that the reported concentration exceeds the PAL.

NE - Not established.

U - The analyte was not detected at or above the stated limit. (Sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description).

J - The reported value is an estimated concentration.

U J - The analyte was not detected at the stated sample quantitation limit, which is an estimated value.

Q - One or more quality control criteria failed.

M - A matrix effect was present.

U M - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description). / A matrix effect was present.

µg/kg – micrograms per kilogram

Table D-5. OU 1 2017 TPH Results in Soil Samples (mg/kg)

		Location Name	CL-B18a	CL-B21	SP-B01	SP-B62
		Sample Name	CL-B18a-S-18.0-170718	CL-B21-S-12.0-170720	SP-B01-S-17.5-170711	SP-B62-S-7.0-170803
		Sample Type	N	N	N	N
Method	**Analyte**	**Screening Level [a]**	**Result**	**Result**	**Result**	**Result**
NWTPH-HCID	TPH-Diesel range C12-C24	NE	300 J	140	4,200 J	80,000 J
NWTPH-HCID	TPH-Motor Oil C24-C36	NE	140 J	310	6,600 J	330,000 J
NWTPH-HCID	TPH-Total Unknown Gasoline Range Organics	NE	28 UJ	27 U	13,000 J	390,000 J
NWTPH-Dx	TPH-Diesel range	2000	950 J	260	**6,900** J	**69,000** J
NWTPH-Dx	TPH-Motor Oil C24-C36	2000	660 J	800	**12,000** J	**240,000** J
NWTPH-Gx	TPH-Total Gasoline Range Organics	100	NA	NA	**6,500** J	**13,000**

Notes:
Samples analyzed using EPA Method NWTPH-HCID, NWTPH-Dx, NWTPH-Gx
EPA Method NWTPH-HCID is a screening method for TPH
N – Sample is not part of a duplicate pair.
U - The analyte was analyzed but not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description).
J - The reported value is an estimated concentration.
UJ - The analyte was analyzed but not detected. the sample quantitation limit is an estimated value.
NA - not analyzed
NE - not established
[a] MTCA Method A Soil Cleanup Levels used as screening levels for reference
Bolded values indicate that the reported concentration exceeds the PAL.
mg/kg - milligrams per kilogram

Table D-6. OU 1 2017 VOCs in Soil Samples (µg/kg)

		Location Name:	CL-B02			CL-B03			CL-B04			SP-B01			SP-B62
		Sample Name	CL-B02-S-14.0-170711	CL-B02-S-20.0-170711	CL-B02-S-29.0-170711	CL-B03-S-18.0-170712	CL-B03-S-19.4-170712	CL-B03-S-37.0-170712	CL-B04-S-11.5-170712	CL-B04-S-19.5-170712	CL-B04-S-29.0-170712	SP-B01-S-13.5-170711	SP-B01-S-17.5-170711	SP-B01-S-28.0-170711	SP-B62-S-7.0-170803
		Sample Type	N	N	N	N	N	N	N	N	N	N	N	N	N
Analyte	PAL or Screening level	Source	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
1,1,1,2-Tetrachloroethane	38,500	B	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	210	78 U	0.43 U	1.6 U Q
1,1,1-Trichloroethane	1,490	SAP	0.88 UJ	0.88 UJ	0.97 UJ	0.92 UJ	0.89 UJ	1.1 UJ	0.9 UJ	0.88 UJ	1.2 UJ	140 J	26 U	0.87 UJ	3.3 U
1,1,2,2-Tetrachloroethane	0.08	A	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.2 U	1.8 U	1.8 U	2.4 U	9.8 U	13 U	1.7 U	6.6 U
1,1,2-Trichloroethane	1.81	A	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	20 U M	26 U	0.43 U	1.6 U
1,1-Dichloroethane	40.7	SAP	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U M	0.44 U	0.59 U	20 U	26 U	0.43 U	0.87 J
1,1-Dichloroethene	45.7	SAP	5.2	1 J	0.97 U M	0.92 U M	4.8	1.1 U	0.9 U	2.9 J	13	**2,300**	**160**	0.87 U	3.3 U
1,1-Dichloropropene	NE	NA	0.88 UJ	0.88 UJ	0.97 UJ	0.92 UJ	0.89 UJ	1.1 UJ	0.9 UJ	0.88 UJ	1.2 UJ	34 U	46 U	0.87 UJ	3.3 U
1,2,3-Trichlorobenzene	21	D	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.2 U	1.8 U	1.8 U	2.4 U	59 U	78 U	1.7 U	6.6 U M Q
1,2,3-Trichloropropane	33	B	0.88 U	0.88 U	0.97 U	0.92 U	0.89 U	1.1 U	0.9 U	0.88 U	1.2 U	59 U	78 U	0.87 U	**40**
1,2,4-Trichlorobenzene	29.4	A	0.88 U	0.88 U	0.97 U	0.92 U	0.89 U	1.1 U	0.9 U	0.88 U	1.2 U	98 U	130 U	0.87 U	3.3 U M Q
1,2,4-Trimethylbenzene	NE	NA	5.9	2.7	1.6 J	1.3 J	0.89 J	1.1 J	0.59 J	0.72 J	0.71 J	140,000	97,000	28	370,000 J
1,2-Dibromo-3-Chloropropane	1,250	B	3.5 U M	3.5 U	3.9 U	3.7 U M	3.5 U	4.3 U	3.6 U	3.5 U	4.7 U	**3,500**	520 U M	3.5 U	13 U Q
1,2-Dibromoethane	NE	NA	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	20 U Q	26 U Q	0.43 U	1.6 U
1,2-Dichlorobenzene	399	A	0.88 U M	0.88 U M	0.97 U M	0.92 U M	0.89 U	1.1 U M	0.9 U	0.88 U	1.2 U	20 U	26 U	0.87 U M	3.3 U
1,2-Dichloroethane	23.1	SAP	0.44 UJ	0.44 UJ	0.48 UJ	0.46 UJ	0.44 UJ	0.54 UJ	0.45 UJ	0.44 UJ	0.59 UJ	34 U	46 U	0.43 UJ	0.99 J
1,2-Dichloropropane	1.67	A	0.88 UJ	0.88 UJ	0.97 UJ	0.92 UJ	0.89 UJ	1.1 UJ	0.9 UJ	0.88 UJ	1.2 UJ	19 U Q M	25 U Q	0.87 UJ	3.3 UJ
1,3,5-Trimethylbenzene	800,000	C	1.2 J	0.53 J	0.29 J	0.25 J	0.16 J	0.21 J	0.45 U	0.44 U	0.59 U	45,000	27,000	6.9	140,000 J
1,3-Dichlorobenzene	NE	NA	0.88 U	0.88 U M	0.97 U M	0.92 U M	0.89 U M	1.1 U	0.9 U M	0.88 U	1.2 U M	34 U	46 U	0.87 U M	3.3 U M
1,3-Dichloropropane	NE	NA	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	34 U Q M	46 U Q	0.43 U	1.6 U
1,4-Dichlorobenzene	67.7	A	0.44 U M	0.44 U M	0.48 U M	0.46 U M	0.44 U M	0.54 U M	0.45 U M	0.44 U	0.59 U M	59 U Q M	78 U Q	0.43 U M	1.6 U
2,2-Dichloropropane	NE	NA	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.2 U	1.8 U	1.8 U	2.4 U	59 U	78 U	1.7 U	6.6 U
2-Chlorotoluene	NE	NA	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	34 U Q	46 U Q	0.43 U M	1.6 U
4-Chlorotoluene	NE	NA	0.44 U M	0.44 U M	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	740	78 U Q M	0.43 U M	3,000 J
4-Isopropyltoluene	NE	NA	0.61 J	0.88 U	0.97 U	0.92 U	0.89 U	1.1 U M	0.9 U	0.88 U M	1.2 U	20,000	12,000	3.1	62,000 H
Benzene	1.74	A	0.88 U Q	0.88 U Q	0.97 U Q	0.92 U Q	0.89 U Q	1.1 U M Q	0.9 U Q	0.88 U Q	1.2 U Q	**390** J	46 U M	0.87 U Q	**11**
Bromobenzene	NE	NA	3.5 U	3.5 U	3.9 U	3.7 U	3.5 U	4.3 U	3.6 U	3.5 U	4.7 U	98 U Q	130 U Q	3.5 U	13 U
Bromochloromethane	NE	NA	0.44 U Q	0.44 U Q	0.48 U Q	0.46 U Q	0.44 U Q	0.54 U Q	0.45 U Q	0.44 U Q	0.59 U Q	34 U	46 U	0.43 U Q	1.6 U
Bromodichloromethane	2.6	A	0.44 U M Q	0.44 U M Q	0.48 U M Q	0.46 U Q	0.44 U M Q	0.54 U M Q	0.45 U M Q	0.44 U M Q	0.59 U M Q	**54,000** M	26 U M	0.43 U M Q	1.6 U
Bromoform	22.9	A	0.88 U	0.88 U	0.97 U	0.92 U	0.89 U	1.1 U	0.9 U	0.88 U	1.2 U	200 U	260 U	0.87 U	3.3 U
Bromomethane	3.31	A	0.44 UJ	0.44 UJ	0.48 UJ	0.46 UJ	0.44 UJ	0.54 UJ	0.45 UJ	0.44 UJ	0.59 UJ	59 U	78 U	0.43 UJ	1.6 U
Carbon Tetrachloride	2.19	A	0.88 U Q	0.88 U Q	0.97 U Q	0.92 U Q	0.89 U Q	1.1 U Q	0.9 U Q	0.88 U Q	1.2 U Q	20 U	26 U	0.87 U Q	3.3 U Q
Chlorobenzene	51.1	A	0.88 U	0.88 U	0.97 U	0.92 U	0.89 U	1.1 U	0.9 U	0.88 U	1.2 U	**970**	78 U Q	0.87 U M	**100**
Chloroethane	40.7	SAP	0.44 UJ	0.44 UJ	0.48 UJ	0.46 UJ	0.44 UJ	0.54 UJ	0.45 UJ	0.44 UJ	0.59 UJ	98 U	130 U	0.43 U	1.6 U
Chloroform	4.8	A	0.88 UJ	0.88 UJ	0.97 UJ	0.92 UJ	0.89 UJ	1.1 UJ	0.9 UJ	0.88 UJ	1.2 UJ	20 U	26 U	0.87 UJ	3.3 U
Chloromethane	NE	NA	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	59 U	78 U	0.43 U	1.6 UJ
Cis-1,2-Dichloroethene	78.1	SAP	**1,300** J Q	**450** J Q	46 Q	46 Q	**9,000**	13 Q	8.1 Q	**5,600**	**6,600**	**1,100,000**	**160,000**	63 Q	68
Cis-1,3-Dichloropropene	0.14	A	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	20 U Q	26 U Q	0.43 U	1.6 U
Dibromochloromethane	1.82	A	0.88 U	0.88 U	0.97 U	0.92 U	0.89 U	1.1 U	0.9 U	0.88 U	1.2 U	59 U	78 U	0.87 U	3.3 U
Dibromomethane	NE	NA	0.44 UJ	0.44 UJ	0.48 UJ	0.46 UJ	0.44 UJ	0.54 UJ	0.45 UJ	0.44 UJ	0.59 UJ	34 U M	46 U	0.43 UJ	1.6 U
Dichlorodifluoromethane	16,000,000	C	0.88 UJ	0.88 UJ	0.97 UJ	0.92 UJ	0.89 UJ	1.1 UJ	0.9 UJ	0.88 UJ	1.2 UJ	200 UJ	260 UJ	0.87 UJ	3.3 U
Ethylbenzene	343	A	0.88 U	0.88 U	0.97 U M	0.92 U M	0.89 U M	1.1 U	0.9 U	0.88 U	1.2 U	**4,100**	**2,900** J	0.71 J	**400**
Hexachlorobutadiene	30.3	A	1.8 U	1.8 U	1.9 U	1.8 U	1.8 U	2.2 U	1.8 U	1.8 U	2.4 U	98 U	130 U	1.7 U	6.6 U
Isopropylbenzene	NE	NA	0.44 U M	0.44 U M	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	9,300	5,500	1.3 J	39,000 J
M- and P-Xylene[1]	772	A	0.58 J	0.41 J	0.27 J	0.46 U	0.44 U M	0.54 U	0.23 J	0.44 U	0.59 U	**14,000**	**11,000**	2.9	**40,000** J
Methyl Tert-Butyl Ether	7.23	A	0.88 UJ	0.88 UJ	0.97 UJ	0.92 UJ	0.89 UJ	1.1 UJ	0.9 UJ	0.88 UJ	1.2 UJ	34 U	46 U	0.87 UJ	3.3 U
Methylene Chloride	1.48	A	3.9 U	4.7 U	4.5 U	**5.4** J	**3.7** J	**4.2** J	3.3 U	5.4 U	4.3 U	390 U	520 U	4.2 U	**5.1** J
N-Butylbenzene	4,000,000	C	2.4	0.44 U M	0.59 J	0.46 U M	0.44 U M	0.35 J	0.45 U	0.22 J	0.59 U	21,000	12,000	13	68,000 J
Naphthalene	236	A	1.8 J	3.5 U	3.9 U	3.7 U	3.5 U	4.3 U	3.6 U	3.5 U	4.7 U M	**460**	**7,300**	6.2 J	**6,700** J
O-Xylene	844	A	0.29 J	0.88 U	0.97 U M	0.92 U	0.89 U	1.1 U	0.9 U	0.88 U	1.2 U	**10,000**	**7,400**	1.7	**21,000** J
Propylbenzene	8,000,000	C	0.72 J	0.37 J	0.97 U	0.92 U M	0.89 U	1.1 U	0.9 U	0.88 U	1.2 U	22,000	14,000	3.8	73,000 J

Table D-6. OU 1 2017 VOCs in Soil Samples (µg/kg)

		Location Name:	CL-B02			CL-B03			CL-B04			SP-B01			SP-B62
		Sample Name	**CL-B02-S-14.0-170711**	**CL-B02-S-20.0-170711**	**CL-B02-S-29.0-170711**	**CL-B03-S-18.0-170712**	**CL-B03-S-19.4-170712**	**CL-B03-S-37.0-170712**	**CL-B04-S-11.5-170712**	**CL-B04-S-19.5-170712**	**CL-B04-S-29.0-170712**	**SP-B01-S-13.5-170711**	**SP-B01-S-17.5-170711**	**SP-B01-S-28.0-170711**	**SP-B62-S-7.0-170803**
		Sample Type	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**	**N**
Analyte	**PAL or Screening level**	**Source**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Sec-Butylbenzene	8,000,000	C	0.32 J	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U M	0.45 U M	0.44 U	0.59 U M	14,000	8,200	3.5	66,000 J
Styrene	120	A	0.44 U	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	34 U M	46 U M	0.43 U M	1.6 U M
Tert-Butylbenzene	8,000,000	A	0.44 U M	0.44 U	0.48 U	0.46 U	0.44 U	0.54 U	0.45 U	0.44 U	0.59 U	900	2,500 U	0.43 U M	62
Tetrachloroethene	49.9	SAP	0.88 U	0.88 U	0.97 U M	0.92 U	0.89 U	1.1 U	0.9 U	0.88 U	1.2 U	**17,000**	**2,200**	0.82 J	3.3 U
Toluene	273	A	0.3 J	0.27 J	0.35 J	0.28 J	0.89 U	1.1 U	0.27 J	0.28 J	1.2 U	2,800	14,000 U	0.37 J	120
Trans-1,2-Dichloroethene	518	SAP	2 J	32 J	0.78 J	0.83 J	2 J	1.1 UJ	0.9 UJ	48 J	35 J	**19,000**	**1,800**	0.99 J	7.4
Trans-1,3-Dichloropropene	0.137	A	3.5 U	3.5 U	3.9 U	3.7 U	3.5 U	4.3 U	3.6 U	3.5 U	4.7 U	34 U Q	46 U Q	3.5 U	13 U
Trichloroethene	25.2	SAP	**7,400** J	**5,200** J	**3,600** J	**3,900**	**83** Q	**92** Q	**51** Q	**3,800** J	**6,900** J	**83,000,000** B	**1,600,000** J	**7,500** B	2.4 J
Trichlorofluoromethane	24,000,000	C	0.88 UJ	0.88 UJ	0.97 UJ	0.92 UJ	0.89 UJ	1.1 UJ	0.9 UJ	0.88 UJ	1.2 UJ	200 U	260 U	0.87 UJ	3.3 U
Vinyl Chloride	1.67	SAP	**44** J	**6.5** J	1.3 J	**3.8** J	**25** J	1.1 UJ	0.9 UJ	**5** J	**77** J	200 U	260 U	0.58 J	**8.3** J

Notes:

Samples analyzed using EPA Method 8260C.

[1]The lowest MTCA Method B value for M-Xylene was chosen to represent M- and P-Xylene, as the M-Xylene value was the lower of the two analytes.

Screening levels based either on the lowest MTCA Method B value show in Ecology's July 2015 CLARC table or the project SAP. Values used as presented by Ecology without recalculation.

A - Screening level source is "Protective of Groundwater Saturated".

B - Screening level source is "Method B Cancer".

C - Screening level source is "Method B Non Cancer".

D - Screening level source is "Protective of Groundwater Vadose at 25 degC"

SAP - The screening level source is the SAP for this project: "Sampling and Analysis Plan Operable Unit 1 Site Recharacterization, June 29, 2017."

NA - Not applicable; NE - Not established.

N – Sample is not part of a field duplicate pair

PAL - Project Action Limit

U - The analyte was analyzed but not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qual using the 5x/10x rule so this definition is different than the lab description).

J - The reported value is an estimated concentration.

E - The reported value exceeded the instrument calibration range, estimated concentration.

UJ - The analyte was analyzed but not detected. the sample quantitation limit is an estimated value.

B - The analyte was found in an associated blank, as well as in the sample.

H - Sample was prepped or analyzed beyond the specified holding time.

J H - The reported value is an estimated concentration./Sample was prepped or analyzed beyond the specified holding time.

M - A matrix effect was present.

Q - One or more quality control criteria failed.

U H - The analyte was analyzed but not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qual using the 5x/10x rule so this definition is different than the lab description)./Sample was prepped or analyzed beyond the specified holding time.

U M - The analyte was analyzed but not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qual using the 5x/10x rule so this definition is different than the lab description)./A matrix effect was present.

Underlined values represent analytes not detected at or above the stated limit, which exceeds the PAL.

Bolded values indicate that the reported concentration exceeds the PAL.

Table D-7. OU 1 2017 PCBs in Soil Samples (mg/kg)

	Location Name	CL-B18a	CL-B21	SP-B01	SP-B62
	Sample Name	CL-B18a-S-18.0-170718	CL-B21-S-12.0-170720	SP-B01-S-17.5-170711	SP-B62-S-7.0-170803
	Sample Type	N	N	N	N
Analyte Name	**PAL* (mg/kg)**	**Result**	**Result**	**Result**	**Result**
Aroclor-1016	0.5	0.029 U	0.025 U	0.023 U J	0.31 U J
Aroclor-1221	0.5	0.014 U	0.012 U	0.012 U	0.15 U J
Aroclor-1232	0.5	0.014 U	0.012 U	0.012 U	0.15 U J
Aroclor-1242	0.5	0.005 U	0.0043 U	0.0041 U	0.054 U J
Aroclor-1248	0.5	0.014 U	0.012 U	0.012 U	0.15 U J
Aroclor-1254	0.5	0.053	0.0062 U	**1.1**	0.32 J
Aroclor-1260	0.5	0.01 U	0.0087 U	0.34 J	0.11 U J

Notes:

* WAC 173-340-747; Soil Method B cleanup level

Bold indicates exceedance of PAL.

Samples analyzed using EPA Method 8082 A

mg/kg - milligram per kilogram

U - The compound was analyzed for, but was not detected ("nondetect") at or above the LOD.

J - The result is an estimated concentration that is less than the LOQ, but greater than or equal to the DL.

U J - The analyte was not detected at the stated sample quantitation limit, which is an estimated value

N – Sample is not part of a field duplicate pair

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	CL-B02	CL-B03	CL-B04	CL-B05	CL-B06a	CL-B07	CL-B08
	Sample Name	CL-B02-GW-20.0-170711	CL-B03-GW-22.0-170712	CL-B04-GW-20.0-170712	CL-B05-GW-19.0-170712	CL-B06a-GW-16.0-170713	CL-B07-GW-29.0-170713	CL-B08-GW-18.0-170713
	Sample Type	N	N	N	N	N	N	N
ANALYTE_NAME	PAL	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	100 UJ	2.5 UJ	2.5 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
1,1-Dichloroethane	7.7	50 UJ	2.5 UJ	2.5 UJ	0.15 J	0.054 J	0.069 J	2 J
1,1-Dichloroethene	7	200 UJ	**15** J	**12** J	0.73 J	0.05 UJ	3.3 J	5.1 J
1,2-Dichloroethane	0.48	**53** J	2.5 UJ	2.5 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
Chloroethane	7.7	350 UJ	10 UJ	10 UJ	0.63 J	0.2 UJ	0.2 UJ	0.2 UJ
Cis-1,2-Dichloroethene	16	**3,900** J	**4,500** J	**4,400** J	**150** J	**33** J	**250** J	**270** J
Tetrachloroethene	5	100 UJ	10 UJ	3.5 J	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
Trans-1,2-Dichloroethene	100	**160** J	71 J	97 J	2.9 J	1 J	3.1 J	**110** J
Trichloroethene	0.54	**22** J	**60** J	**6.4** J	**160** J	0.5 J	0.18 J	0.1 J
Vinyl Chloride	0.029	**270** J	**210** J	**1,300** J	**43** J	**100** J	**120** J	**740** J

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	**CL-B09**	**CL-B10**	**CL-B11**	**CL-B12**	**CL-B13**	**CL-B14B**	
	Sample Name	**CL-B09-GW-14.0-170713**	**CL-B10-GW-12.0-170714**	**CL-B11-GW-12.0-170714**	**CL-B12-GW-21.0-170714**	**CL-B13-GW-12.0-170717**	**CL-B14b-GW-22.0-170717**	**FD-170717-02**
	Sample Type	**N**	**N**	**N**	**N**	**N**	**P**	**FD**
ANALYTE_NAME	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	200	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethane	7.7	0.083 J	0.19 J	0.3	0.19 J	0.86	0.05 U M	0.05 U M
1,1-Dichloroethene	7	0.05 UJ	0.05 U M	0.05 U M	2.2	0.05 U M	**210** H	**210** H
1,2-Dichloroethane	0.48	0.05 UJ	0.065 J	0.026 J	0.05 U	0.05 U M	0.05 U	0.05 U M
Chloroethane	7.7	0.2 UJ	0.2 U M	**11** M	0.83	0.92 M	0.2 U M	0.2 U
Cis-1,2-Dichloroethene	16	2.8 J	**16**	0.97	**210** J	0.28	**50,000** J	**46,000** J
Tetrachloroethene	5	0.2 UJ	0.2 U M	0.2 U M	0.2 U	0.2 U M	0.2 U M	0.2 U M
Trans-1,2-Dichloroethene	100	0.17 J	0.25	0.05 U	61 J	0.05 U M	**1,300** J	**1,300** J
Trichloroethene	0.54	0.1 J	**6.1**	0.099 J	**150** J	0.087 U	**610** J	**610** J
Vinyl Chloride	0.029	**3.5** J	**3.2** M	**0.72** M	**22**	0.015 U M	**22,000** J	**20,000** J

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	CL-B15	CL-B16	CL-B17	CL-B18a	CL-B18a		CL-B19
	Sample Name	CL-B15-GW-23.0-170717	CL-B16-GW-13.0-170718	CL-B17-GW-19.5-170718	CL-B18a-GW-14.5-170718	CL-B18a-GW-33.0-170719	CL-B18b-GW-20.0-170807	CL-B19-GW-23.0-170719
	Sample Type	N	N	N	N	N	N	N
ANALYTE_NAME	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	200	0.05 U	37	0.05 U M	0.05 U	0.05 U	500 U	0.05 U
1,1-Dichloroethane	7.7	0.05 U M	**550**	0.11 J M	0.58	0.05 U M	250 U	0.23
1,1-Dichloroethene	7	0.05 U M	**37**	0.05 U M	0.05 U M	10	1,000 U M	0.05 U M
1,2-Dichloroethane	0.48	0.05 U	**38**	0.031 J	0.053 J	0.05 U	500 U	0.05 U
Chloroethane	7.7	0.46 J M	**5,300** M	0.2 U M	2.3 M	0.2 U M	1,800 U	0.2 U M
Cis-1,2-Dichloroethene	16	14 J	**1,100** J	**36** J	**24**	**5,700** J	**22,000**	0.55 J
Tetrachloroethene	5	0.2 U M	0.23 J	0.2 U M	0.2 U M	0.2 U M	500 U	0.2 U M
Trans-1,2-Dichloroethene	100	0.28	25 U M	0.61	0.66	1,000 U R	1,000 U M	0.099 J
Trichloroethene	0.54	0.13 U	**27** J	0.26	0.38	**6.7**	**1,100** J	0.23 J
Vinyl Chloride	0.029	**2.5**	**180** B M	**0.69** B M	**3.9** M	**1,300** J	**2,200** J	**1** J

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	**CL-B20**		**CL-B21**	**CL-B22**	**CL-B23**		**CL-B24**
	Sample Name	**CL-B20-GW-26.5-170719**	**CL-B20-GW-32.0-170719**	**CL-B21-GW-12.5-170720**	**CL-B22-GW-19.0-170720**	**CL-B23-GW-14.0-170720**	**CL-B23-GW-18.0-170720**	**CL-B24-GW-16.0-170720**
	Sample Type	**N**	**N**	**N**	**N**	**N**	**N**	**N**
ANALYTE_NAME	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	200	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethane	7.7	3.7	0.39	0.14 J	0.47	0.077 J	0.05 U M	0.37
1,1-Dichloroethene	7	3.4	**26**	0.05 U M	5.7	1	2.6	0.7
1,2-Dichloroethane	0.48	0.056 J	0.026 J	**4**	**1.1**	0.05 U M	0.05 U	0.05 U M
Chloroethane	7.7	**18**	0.2 U M	1,800 U R	1,800 U R	0.2 U M	0.2 U M	0.2 U M
Cis-1,2-Dichloroethene	16	**1,400** J	**14,000** J	250 U R	**26** B	**410** J	**1,100** J	**230** J
Tetrachloroethene	5	0.2 U M	0.2 U M	0.2 U M	**9**	0.2 U M	0.39 J	0.2 U M
Trans-1,2-Dichloroethene	100	20	**1,000** U R	1.1	45	1.5	31	17
Trichloroethene	0.54	**0.71**	**1.7**	0.05 U	**200** J	0.14 J	**1.3**	0.068 J
Vinyl Chloride	0.029	**290** J	**3,800** J	0.015 UJ	**21** J	**150** J	250 U R	**350** J

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	CL-B25	CL-B26a	CL-B27	CL-B28		CL-B29a	CL-B30a
	Sample Name	CL-B25-GW-29.0-170720	CL-B26a-GW-10.0-170721	CL-B27-GW-12.0-170721	CL-B28-GW-10.0-170721	FD-170721-02	CL-B29a-GW-21.0-170724	CL-B30a-GW-21.0-170724
	Sample Type	N	N	N	N	FD	N	N
ANALYTE_NAME	PAL	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1-Dichloroethane	7.7	0.15 J	0.05 U M	0.11 J	0.05 U M	0.05 U M	**29.5** J	0.05 U
1,1-Dichloroethene	7	3.1	0.05 U M	0.05 U M	0.05 U M	0.05 U M	4.39	0.05 U
1,2-Dichloroethane	0.48	0.05 U M	0.05 U	0.05 U	0.05 U	0.05 U	**4.49**	**0.87**
Chloroethane	7.7	0.2 U M	0.2 U M	0.2 U M	0.2 U M	0.2 U M	0.5 UJ	0.5 UJ
Cis-1,2-Dichloroethene	16	**590** J	250 U H	250 U H	250 U H	250 U H	**108** J	0.05 U
Tetrachloroethene	5	0.2 U M	0.2 U M	0.2 U M	0.2 U M	0.2 U M	1.92	0.192 J
Trans-1,2-Dichloroethene	100	9.3	0.05 U	0.33	0.05 U	0.05 U	37.7 J	0.189 J
Trichloroethene	0.54	0.18 J	0.068 J	**0.81**	0.036 J	0.05 U M	**122** J	0.467 U
Vinyl Chloride	0.029	**250** U R	0.015 U M	0.015 U M	0.015 U M	0.015 U M	**253** J	**0.434**

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

Location Name		CL-B31	CL-B32	CL-B33	CL-B34	CL-B35	CL-B36a	CL-B37
Sample Name		CL-B31-GW-12.0-170724	CL-B32-GW-16.0-170724	CL-B33-GW-13.0-170724	CL-B34-GW-20.0-170725	CL-B35-GW-21.0-170725	CL-B36a-GW-17.0-170725	CL-B37-GW-15.0-170726
Sample Type		N	N	N	N	N	N	N
ANALYTE_NAME	PAL	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.164 J
1,1-Dichloroethane	7.7	0.05 U	0.259 J	0.145 J	1.88	0.05 U	1.25	0.117 J
1,1-Dichloroethene	7	0.05 U	1.76 J	0.05 UJ	3.15	**23.7** D	**23.7** D	0.946 J
1,2-Dichloroethane	0.48	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	0.0163 J
Chloroethane	7.7	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	6.46 J
Cis-1,2-Dichloroethene	16	0.05 U	**505** J	1.21 J	**698** D	**4,520** D	**4,790** D	**52.2** J
Tetrachloroethene	5	0.177 J	0.172 J	0.2 UJ	0.171 J	0.17 J	0.172 J	0.2 UJ
Trans-1,2-Dichloroethene	100	0.05 U	51.8 J	0.667 J	**336** D	98 D	**122** D	12.4 J
Trichloroethene	0.54	0.05 U	2.82 U	**1.39** J	1.87 U	**1.32** U	17 U	**7.1** J
Vinyl Chloride	0.029	0.015 U	**188** J	0.015 UJ	0.015 U	**1,040** D	**2,030** D	**46.1** J

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	CL-B39	SP-B01		SP-B01a	SP-B01B		
	Sample Name	CL-B39-GW-10.0-170726	SP-B01-GW-13.5-170711	SP-B01-GW-17.5-170711	SP-B01a-GW-28.0-170711	FD-0170807-01	SP-B01b-GW-10.0-170807	SP-B01b-GW-15.0-170809
	Sample Type	N	N	N	N	FD	P	N
ANALYTE_NAME	PAL	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	0.164 J	1 U	1 UJ	25 UJ	500 U	500 U	500 U
1,1-Dichloroethane	7.7	0.204 J	0.63 J	0.5 UJ	13 UJ	250 U	250 U	250 U
1,1-Dichloroethene	7	0.0156 J	**88** J	**80** J	50 UJ	1,000 U M	1,000 U	1,000 U
1,2-Dichloroethane	0.48	0.0179 J	1 U	1 UJ	25 UJ	500 U	500 U	500 U
Chloroethane	7.7	0.408 J	3.5 U	3.5 UJ	88 UJ	1,800 U	1,800 U	1,800 U
Cis-1,2-Dichloroethene	16	0.569 J	**150,000** J	**130,000** J	**360** J	**100,000**	**350,000**	**120,000**
Tetrachloroethene	5	0.2 UJ	**25** J	**43** J	25 UJ	500 U	500 U	500 U
Trans-1,2-Dichloroethene	100	0.595 J	**4,100** J	**3,700** J	23 J	**1,100** J	**2,300**	**1,100** J
Trichloroethene	0.54	0.182 J	**150,000** H	**360,000** H	**500** J	**320,000**	**260,000**	**310,000**
Vinyl Chloride	0.029	**1.71** J	**7,900** J	**2,900** J	**320** J	**4,300** J M	**32,000**	**4,800** J

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	SP-B40		SP-B41	SP-B42		SP-B43a	SP-B44
	Sample Name	SP-B40-GW-11.0-170726	SP-B40-GW-16.0-170726	SP-B41-GW-10.0-170726	SP-B42-GW-10.0-170727	SP-B42-GW-18.0-170727	SP-B43a-GW-13.0-170807	SP-B44-GW-12.0-170727
	Sample Type	N	N	N	N	N	N	N
ANALYTE_NAME	PAL	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	**5,810** J	**255** J	3.8 J	0.921 J	0.489 J	500 U	1.24 J
1,1-Dichloroethane	7.7	**17,600** J	**302** J	**8.43** J	1.41 J	0.572 J	250 U	4.82 J
1,1-Dichloroethene	7	**305** J	5.64 J	1 UJ	**12.2** J	3.87 J	1,000 U M	**53.1** J
1,2-Dichloroethane	0.48	**5.12** J	1 UJ	1 UJ	0.0376 J	0.0312 J	500 U	0.198 J
Chloroethane	7.7	**30,600** J	**2,580** J	**26.5** J	**91.9** J	**105** J	1,800 U M	**2,450** J
Cis-1,2-Dichloroethene	16	**456** J	**3,570** J	**18.6** J	**4,270** J	**2,340** J	**27,000**	**11,900** J
Tetrachloroethene	5	0.2 UJ	0.2 UJ	4 UJ	0.55 J	0.0159 J	500 U	0.0687 J
Trans-1,2-Dichloroethene	100	83.8 J	**103** J	4.32 J	62.4 J	36.9 J	1,000 U	**148** J
Trichloroethene	0.54	**195** J	**380** J	**9.54** J	**4,670** J	**1,200** J	**10,000**	**5,330** J
Vinyl Chloride	0.029	**571** J	**3,800** J	**41.9** J	**498** J	**339** J	**4,200** J	**4,200** J

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (μg/L)

	Location Name	SP-B45	SP-B46	SP-B47	SP-B48b	SP-B49		SP-B50
	Sample Name	SP-B45-GW-18.0-170727	SP-B46-GW-15.0-170728	SP-B47-GW-15.0-170728	SP-B48b-GW-10.0-170728	SP-B49-GW-10.0-170728	SP-B49-GW-20.0-170728	SP-B50-GW-14.0-170731
	Sample Type	N	N	N	N	N	N	N
ANALYTE_NAME	PAL	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	0.058 J	0.057 J	0.13 J	0.042 J	0.05 U	0.05 U M	0.05 U M
1,1-Dichloroethane	7.7	1.8	**31**	**33**	**13** J	**17**	0.056 J	1.2
1,1-Dichloroethene	7	**13**	0.58	0.44	**25** J	**69**	5 U	**34**
1,2-Dichloroethane	0.48	0.2	0.11 J	0.097 J	0.33 J	0.05 U	0.05 U M	0.29
Chloroethane	7.7	**15**	1,800 U R	1,800 U R	3,500 U R	100 UJ	0.19 J	0.3 J
Cis-1,2-Dichloroethene	16	**8,300** J	**360** J	**200** J	**12,000** J	**77,000** J	**470** J	**9,300** J
Tetrachloroethene	5	0.2 U M	0.2 U M	0.2 U	0.091 J	**5.3**	0.11 J	0.08 J
Trans-1,2-Dichloroethene	100	94 J	29	40	**130**	**720**	9.5 J	**110**
Trichloroethene	0.54	**47**	**1.4**	**1.7**	**1,700** J	**63,000** J	**480** J	**2,600** J
Vinyl Chloride	0.029	**1,200** J	**2,500** B	**1,800** B	**3,100** B	**5,600** B	**250** U R	**1,100**

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	SP-B51	SP-B52		SP-B53		SP-B54	
	Sample Name	SP-B51-GW-14.0-170731	SP-B52-GW-11.0-170731	SP-B52-GW-20.0-170731	SP-B53-GW-23.0-170731	SP-B53-GW-33.0-170731	SP-B54-GW-35.0-170801	SP-B54-GW-7.0-170801
	Sample Type	N	N	N	N	N	N	N
ANALYTE_NAME	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	200	0.034 J	0.17 J	0.05 U M	50 U M	0.05 U M	2.5 U M	2.5 U M
1,1-Dichloroethane	7.7	0.05 U	2.3	0.068 J	50 U	0.074 J	2.5 U	2.5 U M
1,1-Dichloroethene	7	0.45	**25**	0.53	50 U M	2.5 U	2.5 U M	**64**
1,2-Dichloroethane	0.48	0.05 U M	0.039 J	0.05 U M	50 U M	0.05 U M	2.5 U M	2.5 U M
Chloroethane	7.7	0.2 U M	4.3	0.22 J	200 U M	0.2 U M	10 U M	10 U M
Cis-1,2-Dichloroethene	16	**190** B	**21,000** B	**630** B	**63,000** J	**270** B	**7,700** H B	**59,000** J
Tetrachloroethene	5	0.2 U M	2.8	0.096 J M	200 U M	0.34 J	10 U M	10 U M
Trans-1,2-Dichloroethene	100	1.7 J	**200**	8.6 J	**700**	7.5 J	60	**900**
Trichloroethene	0.54	**250** U R	**26,000** J	**590** J	**540,000** J	**1,900** J	**270** J	**250** J
Vinyl Chloride	0.029	**10**	**1,300**	**26** M	15 U M	**27**	**440** B	**14,000** B

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (μg/L)

	Location Name	SP-B55		SP-B56			SP-B57	
	Sample Name	SP-B55-GW-10.0-170801	SP-B55-GW-33.0-170801	FD-170801-02	SP-B56-GW-10.0-170801	SP-B56-GW-27.0-170801	SP-B57-GW-10.0-170802	SP-B57-GW-29.0-170802
	Sample Type	N	N	FD	P	N	N	N
ANALYTE_NAME	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	200	2.5 U M	2.5 U M	0.05 U	0.05 U	0.05 U M	0.05 U M	0.05 U M
1,1-Dichloroethane	7.7	2.5 U	2.5 U	0.34	0.16 J	0.05 U M	0.37	0.11 J
1,1-Dichloroethene	7	**150**	2.5 U M	**18**	**17**	**18**	2.8	**32**
1,2-Dichloroethane	0.48	2.5 U M	2.5 U M	0.05 U	**0.72**	0.05 U	0.37	0.05 U M
Chloroethane	7.7	10 U M	10 U M	0.2 U	0.2 U	0.2 U	0.2 U Q	0.2 U Q
Cis-1,2-Dichloroethene	16	**43,000** B J	**3,800** B	**31,000** J	**29,000** J	**15,000** B	**6,600** B	**1,700** B
Tetrachloroethene	5	10 U M	10 U M	0.2 U M	0.2 U	0.2 U M	0.2 U	0.2 U M
Trans-1,2-Dichloroethene	100	**290**	52	**370**	**330**	**130**	**120**	61
Trichloroethene	0.54	**20,000** B	**520** J	6.8 U	5.9 U	**250** J	**250** J	**250** J
Vinyl Chloride	0.029	**2,600** B J	**660**	0.015 U	0.015 U M	**1,900** B	**15,000** B	**280** B

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	SP-B58	SP-B59	SP-B60		SP-B61	SP-B62	SP-B63
	Sample Name	SP-B58-GW-39.0-170802	SP-B59-GW-30.0-170802	SP-B60-GW-24.0-170802	SP-B60-GW-9.0-170802	SP-B61-GW-25.0-170803	SP-B62-GW-26.0-170804	SP-B63-GW-24.0-170804
	Sample Type	N	N	N	N	N	N	N
ANALYTE_NAME	PAL	Result	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	0.05 U M	0.05 U M	0.05 U M	0.05 U M	0.05 U M	0.05 U M	0.05 U M
1,1-Dichloroethane	7.7	0.05 U M	0.05 U	0.05 U	0.05 U	0.05 U M	0.12 J	0.05 U
1,1-Dichloroethene	7	**13** U	0.26	0.082 J	0.05 U	0.11 M	0.05 U	0.28
1,2-Dichloroethane	0.48	0.03 J	0.05 U M	0.05 U	0.05 U M	0.05 U M	0.05 U M	0.05 U M
Chloroethane	7.7	0.2 U M Q	0.2 U M Q	0.2 U M Q	0.2 U M Q	0.2 U M	0.2 U M	0.2 U M
Cis-1,2-Dichloroethene	16	**8,500** J	250 U R	**250** UJ	250 UJ	7.5 B	5.5 B	**100** J
Tetrachloroethene	5	0.31 J	0.2 U M	0.2 U M	0.2 U M	0.2 U M	0.2 U M	0.14 J M
Trans-1,2-Dichloroethene	100	**130** J	2.9	0.98	1,000 UJ	0.93	2.3	2.2
Trichloroethene	0.54	**1,400** J	250 U R	250 UJ	250 UJ	250 UJ	250 UJ	**710** J
Vinyl Chloride	0.029	**1,100** J	**9.5** B	250 UJ	250 UJ	250 UJ	250 UJ	250 UJ

Table D-8. OU 1 2017 cVOCs in Grab Groundwater Samples (µg/L)

	Location Name	SP-B64	SP-B65C	SP-B66	SP-B67	SP-B68		SP-B69
	Sample Name	SP-B64-GW-10.0-170804	SP-B65c-GW-9.0-170806	SP-B66-GW-10.0-170806	SP-B67-GW-14.0-170806	FD-170806-01	SP-B68-GW-13.0-170806	SP-B69-GW-12.0-170806
	Sample Type	N	N	N	N	FD	P	N
ANALYTE_NAME	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	200	0.07 J	500 U	500 U	500 U	500 U	500 U	500 U
1,1-Dichloroethane	7.7	0.26 J	250 U	250 U	250 U	250 U M	250 U M	250 U
1,1-Dichloroethene	7	6.6 J	1,000 U M	1,000 U M	1,000 U	1,000 U	1,000 U	1,000 U M
1,2-Dichloroethane	0.48	0.05 U M	500 U	500 U	500 U	500 U	500 U	500 U
Chloroethane	7.7	0.28 J	1,800 U	1,800 U M	1,800 U M	1,800 U	1,800 U M	**2,700**
Cis-1,2-Dichloroethene	16	**6,500** J	**260** J	**22,000**	**2,200**	**2,400**	**2,900**	**1,500**
Tetrachloroethene	5	2 J	500 U M	500 U	500 U	500 U	500 U	500 U
Trans-1,2-Dichloroethene	100	64	1,000 U M	1,000 U	1,000 U M	1,000 U	1,000 U	1,000 U
Trichloroethene	0.54	**15,000** J	**710** J	250 U M	250 U	250 U	250 U	250 U M
Vinyl Chloride	0.029	**84** J	250 UJ	**14,000** J	**9,800** J	**7,200** J	**6,600** J	**1,100** J

Notes:

Samples analyzed using EPA Method 8260C

FD - Field Duplicate

P – Parent sample of field duplicate

N – Sample is not part pof a field duplicate pair

PAL - Project Action Limit

D - The reported value is from a dilution.

JD - The reported value is an estimated concentration. / The reported value is from a dilution.

U - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description).

J - The reported value is an estimated concentration.

UJ - The analyte was not detected at or above the sample quantitation limit, which is an estimated value.

B - The analyte was found in an associated blank, as well as in the sample.

B J - The analyte was found in an associated blank, as well as in the sample. / Sample was prepped or analyzed beyond the specified holding time.

H - Sample was prepped or analyzed beyond the specified holding time.

M - A matrix effect was present.

U R - The reported value is unusable, rejected. Analyte may or may not be present.

U H - The analyte was not detected at or above the stated limit. (Sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description). / Sample was prepped or analyzed beyond the specified holding time.

U M - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description). / A matrix effect was present.

Underlined values represent analytes not detected at or above the stated limit, which exceeds the PAL.

Bolded values indicate that the reported concentration exceeds the PAL

Table D-9. OU 1 2017 cVOCs in Groundwater Monitoring Wells (µg/L)

Location Name		IW1-S	MW1-17	MW1-42	MW1-43	MW1-44	MW1-45
Sample Name		IW1-S-171026	CL-MW1-17-GW-170720	MW1-42-171023	MW1-43-171023	MW1-44-171023	MW1-45-171023
	Sample type	N	N	N	N	N	N
Analyte	PAL (µg/L)	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	0.5 U	0.05 U	1 U	5 U	25 U	1 U
1,1-Dichloroethane	7.7	0.5 U	0.05 U M	5.09 D	5 U	25 U	1 U
1,1-Dichloroethene	7	0.5 U	2.5	0.613 JD	3.76 JD	**26.5** JD	0.931 JD
1,2-Dichloroethane	0.48	0.5 U	0.05 U	1 U	5 U	25 U	1 U
Chloroethane	7.7		1,800 U R				
Cis-1,2-Dichloroethene	16	1.32 U	**680** J	**53.6** D	**982** D	**5,250** D	**187** D
Tetrachloroethene	5	0.5 U	0.2 U M	1 U	5 U	25 U	1 U
Trans-1,2-Dichloroethene	100	0.5 U	0.82	38.7 D	92.1 D	20.8 JD	1 U
Trichloroethene	0.54	**46.6**	250 U R	**1.18** JD	5 U	25 U	1 U
Vinyl Chloride	0.029	0.5 U	250 U R	**46.9** D	**452** D	**723** D	**83.7** D

Table D-9. OU 1 2017 cVOCs in Groundwater Monitoring Wells (µg/L)

Location Name		MW1-46		MW1-47	MW1-48	MW1-49	MW1-50
Sample Name		FD-171023-01	MW1-46-171023	MW1-47-171023	MW1-48-171024	MW1-49-171024	MW1-50-171024
	Sample type	FD	P	N	N	N	N
Analyte	PAL (µg/L)	Result	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	50 U	50 U	100 U	2.5 U	25 U	5 U
1,1-Dichloroethane	7.7	50 U	50 U	100 U	2.5 U	25 U	5 U
1,1-Dichloroethene	7	50 U	50 U	100 U	2.5 U	25 U	5 U
1,2-Dichloroethane	0.48	50 U	50 U	100 U	2.5 U	25 U	5 U
Chloroethane	7.7						
Cis-1,2-Dichloroethene	16	**8,600** D	**8,500** D	**20,900** D	**438** D	**2,830** D	**855** D
Tetrachloroethene	5	50 U	50 U	100 U	2.5 U	25 U	5 U
Trans-1,2-Dichloroethene	100	82 JD	**101** D	**189** JD	4.08 JD	27.9 JD	6.76 JD
Trichloroethene	0.54	50 U	50 U	**86.4** JD	**111** D	**1,040** D	**856** D
Vinyl Chloride	0.029	**2,070** D	**2,050** D	**3,400** D	**98.2** D	**280** D	**54.2** D

Table D-9. OU 1 2017 cVOCs in Groundwater Monitoring Wells (μg/L)

Location Name		MW1-51	MW1-52	MW1-53		MW1-54	MW1-55
Sample Name		**MW1-51-171024**	**MW1-52-171024**	**FD-171026-01**	**MW1-53-171026**	**MW1-54-171024**	**MW1-55-171024**
	Sample type	**N**	**N**	**FD**	**P**	**N**	**N**
Analyte	**PAL (μg/L)**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,1-Trichloroethane	200	0.5 U	1 U	5 U	5 U	0.5 U	2.5 U
1,1-Dichloroethane	7.7	0.357 J	1 U	5 U	5 U	0.5 U	2.5 U
1,1-Dichloroethene	7	0.5 U	0.671 JD	5 U	5 U	0.5 U	1.62 JD
1,2-Dichloroethane	0.48	0.5 U	1 U	5 U	5 U	0.5 U	2.5 U
Chloroethane	7.7						
Cis-1,2-Dichloroethene	16	**23.8**	**156** D	**803** D	**773** D	1.76	**492** D
Tetrachloroethene	5	0.5 U	1 U	5 U	5 U	0.5 U	2.5 U
Trans-1,2-Dichloroethene	100	0.5 U	0.64 JD	31.1 D	29.4 D	0.5 U	5.46 D
Trichloroethene	0.54	0.5 U	**4.37** D	**220** D	**216** D	**2.86**	**357** D
Vinyl Chloride	0.029	**25.3**	**45.2** D	**192** D	**189** D	**0.464** J	**75.2** D

Table D-9. OU 1 2017 cVOCs in Groundwater Monitoring Wells (µg/L)

Location Name		MW1-56		MW1-57		
Sample Name		MW1-56-12.0-171025	MW1-56-24.0-171025	MW1-57-10.0-171025	MW1-57-16.0-171025	MW1-57-34.0-171025[a]
	Sample type	N	N	N	N	N
Analyte	PAL (µg/L)	Result	Result	Result	Result	Result
1,1,1-Trichloroethane	200	1,000 U	1,250 U	1,250 U	1,000 U	25 U
1,1-Dichloroethane	7.7	1,000 U	1,250 U	1,250 U	1,000 U	25 U
1,1-Dichloroethene	7	1,000 U	1,250 U	1,250 U	1,000 U	25 U
1,2-Dichloroethane	0.48	1,000 U	1,250 U	1,250 U	1,000 U	25 U
Chloroethane	7.7					
Cis-1,2-Dichloroethene	16	**31,000** D	**55,200** D	**94,300** D	**58,800** D	**2,470** D
Tetrachloroethene	5	1,000 U	1,250 U	1,250 U	1,000 U	25 U
Trans-1,2-Dichloroethene	100	1,000 U	1,250 U	**938** JD	**661** JD	49.5 JD
Trichloroethene	0.54	**122,000** D	**332,000** D	**361,000** D	**218,000** D	**9,490** D
Vinyl Chloride	0.029	1,000 U	1,250 U	**4,810** D	1,000 U	**406** D

Table D-9. OU 1 2017 cVOCs in Groundwater Monitoring Wells (µg/L)

Location Name		MW1-58			MW1-60
Sample Name		MW1-58-9.0-171115	MW1-58-19.0-171115	MW1-58-35.0-171115	MW1-60-171026
	Sample type	N	N	N	N
Analyte	PAL (µg/L)	Result	Result	Result	Result
1,1,1-Trichloroethane	200	100 U	5 U	1 U	0.5 U
1,1-Dichloroethane	7.7	100 U	5 U	1 U	0.5 U
1,1-Dichloroethene	7	100 U	5 U	1 U	0.5 U
1,2-Dichloroethane	0.48	100 U	5 U	1 U	0.5 U
Chloroethane	7.7				
Cis-1,2-Dichloroethene	16	**23,600** D	**1,110** D	**79.2** D	0.5 U
Tetrachloroethene	5	100 U	5 U	1 U	0.5 U
Trans-1,2-Dichloroethene	100	**245** D	6.85 JD	1 U	0.5 U
Trichloroethene	0.54	**66.6** JD	**27.6** D	**8.53** D	**15.8**
Vinyl Chloride	0.029	**9,570** D	**106** D	**9.64** D	0.5 U

Notes:

[a] – The sample ID incorrectly indicates the depth of this sample as 34 feet bgs. The actual depth was 31 feet bgs.

Samples analyzed using EPA Method 8260C

FD - Field Duplicate

P – Parent sample of field duplicate

N – Sample is not part of a field duplicate pair

PAL - Project Action Limit

U - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description).

D - The reported value is from a dilution.

JD - The reported value is an estimated concentration. / The reported value is from a dilution.

U R - The reported value is unusable, rejected. Analyte may or may not be present.

J - The reported value is an estimated concentration.

U M - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description). / A matrix effect was present.

Underlined values represent analytes not detected at or above the stated limit, which exceeds the PAL.

Bolded values indicate that the reported concentration exceeds the PAL.

Table D-10. OU 1 2017 Groundwater Monitoring Well Results for 1,4-Dioxane (µg/L)

Location Name	Sample Name	Sample Type	PAL	1,4-Dioxane (µg/L)
MW1-43	MW1-43-171023	N	0.44	0.236 U
MW1-46	MW1-46-171023	P	0.44	**4.04**
MW1-46	FD-171023-01	FD	0.44	**3.32**
MW1-47	MW1-47-171023	N	0.44	**2.1**
MW1-48	MW1-48-171024	N	0.44	**4.94**
MW1-50	MW1-50-171024	N	0.44	0.254 U
MW1-52	MW1-52-171024	N	0.44	0.251 U
MW1-56	MW1-56-12.0-171025	N	0.44	0.234 U
MW1-57	MW1-57-10.0-171025	N	0.44	0.246 U
MW1-58	MW1-58-9.0-171115	N	0.44	1.17 U
MW1-60	MW1-60-171026	N	0.44	0.239 U

Samples analyzed using EPA Method 8270D.

FD - Field Duplicate

P – Parent sample of field duplicate

N – Sample is not part of a field duplicate pair

PAL - Project Action Limit

U - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description).

Underlined values represent analytes not detected at or above the stated limit, which exceeds the PAL.

Bolded values indicate that the reported concentration exceeds the PAL. µg/L – micrograms per liter

Table D-11. OU 1 2017 Total PCBs in Sediment (µg/kg)

Location Name	Sample Name	Sample type	Total PCBs (Sum of analyte value with ND as null) Result (µg/kg)		Total number of PCBs detections	Total Organic Carbon %	Total PCBs (TOC Normalized)[a] (mg/kg OC)
			Freshwater				**Marine**
		SMS Sediment SCO	**110**				**12**
		SMS Sediment CSL	**2500**				**65**
MA09	SED02-10-170906	N	**830**	B q	169	1.6	**51.9**
MA14 (DUP)	FD-170906-01	FD	33	B q	164	0.53	6.2
MA14	SED01-10-170906	N	24	q B	157	0.51	4.7
MA19	SED04-10-170906	N	9.9	B q	151	0.58	1.7
SP1-1	SED03-10-170906	N	13	B q	157	0.56	2.3
TF-21	SED05-10-170907	N	30	B q	166	0.79	3.8

Notes:

[a] – If percent TOC is between 0.5 and 3.5, then PCB concentrations TOC-normalized with units of mg/kg OC. To calculate TOC-normalized values, the concentration in µg/kg is divided by the decimal fraction TOC times 1,000 µg/mg.

All samples analyzed using analytical method 1668A.

Bolded values exceed the SCO

DUP – Duplicate

FD - Field Duplicate

P – Parent sample of field duplicate

N – Sample is not part of a field duplicate pair

µg/kg - microgram per kilogram

B - The analyte was found in an associated blank, as well as in the sample.

q - One or more quality control criteria failed.

SCO - sediment cleanup objective

CSL – cleanup screening level

Table D-12. OU 1 2017 PCB Aroclor Analysis in Sediment Samples (µg/kg)

		Location Name	MA-09	MA-14	MA-14	MA19	SP1-1	TF-21
		Sample Name	SED02-10-170906	FD-170906-01	SED01-10-170906	SED04-10-170906	SED03-10-170906	SED05-10-170907
		Sample type	N	FD	P	N	N	N
Analyte	Units	ROD RG (mg/kg OC)	Result	Result	Result	Result	Result	Result
AROCLOR-1016	µg/kg	NE	48 U	31 U	31 U	36 U	35 U	39 U J
AROCLOR-1221	µg/kg	NE	75 U	48 U	49 U	57 U	55 U	62 U
AROCLOR-1232	µg/kg	NE	94 U	60 U	62 U	71 U	69 U	77 U
AROCLOR-1242	µg/kg	NE	110 U	71 U	73 U	83 U	81 U	91 U
AROCLOR-1248	µg/kg	NE	75 U	48 U	49 U	57 U	55 U	62 U
AROCLOR-1254	µg/kg	NE	350 J	46 U	47 U	54 U	52 U	59 U
AROCLOR-1260	µg/kg	NE	120 J	33 U Q	33 U Q	38 U Q	37 U Q	42 U Q
AROCLOR-1262	µg/kg	NE	130 U	82 U	84 U	96 U	94 U	100 U
AROCLOR-1268	µg/kg	NE	100 U	65 U	66 U	76 U	74 U	82 U
Total PCB Aroclors	mg/kg OC	12	29.38 J	8.68 U	9.22 U	1.61 U	1.66 U	7.47 U
CARBON	mg/kg	NE	16,000.00	5,300.00 J	5,100.00 J	5,800.00	5,600.00 J	7,900.00 J

Notes:

Samples analyzed for Aroclor analysis by method 8082 A, carbon analysis by 9060.

FD – Field duplicate

P – Parent Sample of field duplicate

N – Sample is not part of a field duplicate pair

U - The analyte was analyzed but not detected at or above LOD. (sometimes validators will elevate the limit due to the "B" qual using the 5x/10x rule so this definition is different than the lab description).

J - The reported value is an estimated concentration.

U J - The analyte was analyzed but not detected. The sample quantitation limit is an estimated value.

Q - One or more quality control criteria failed.

Total PCB (Aroclor) are derived based on the sum of the concentrations of Aroclors® 1016, 1221, 1232, 1242, 1248, 1254 and 1260.

When all chemicals in a group are undetected, only the single highest individual chemical quantitation limit in a group should be reported and appropriately qualified. If some concentrations were detected and others were not, only the detected concentrations are included in the sum.

Table D-13. OU 1 Calculated Total Dissolved PCB* and Diffusive PCB Flux Obtained via Passive Samplers (PEDs)

PED Type	Location	Calculated Water Concentration (ng/L)		Calculated Flux** (μg/m^2/yr)
PED Frames		**Porewater**	**Surface Water**	
PED-01	TF-21	3.3	0.6	191
PED-02	MA-14	8.9	0.8	574
PED-03	MA-09	14.6	NA	N/A
PED-04	SP1-1	2.2	NA	N/A
PED-05	MA19	3.4	0.6	200
PED-06	*new*	2.6	0.5	148
Piezometers/Wells		**Groundwater**		
PED-07	P1-1	6		NA
PED-08	P1-2	1.1		NA
PED-09	MW1-14	129.2		NA
PED-10	MW1-2	0.9		NA

Notes:
* in PCB summations congeners not detected above the detection limit were counted as zero and within co-eluting congener groups calculations were conducted on the one with the lowest PED-water partition coefficient which results in the highest (more conservative) total PCB estimate (see text for more information)
** positive values of flux indicate transport from porewater to surface water
NA - Not Available – surface water portion of PED damaged during deployment.
μg/m^2/yr - micrograms per squared meters per year
ng/L - nanogram per liter

Table D-14. OU 1 2017 cVOCs in Porewater Samples (µg/L)

	Location Name	PW1-01	PW1-02		PW1-03	PW1-04	PW1-05	PW1-06	PW1-07	PW1-08	PW1-09	PW1-10
	Sample Name	PW1-01-170907	PW1-02-170907	FD-170907-01	PW1-03-170907	PW1-04-170907	PW1-05-170908	PW1-06-170908	PW1-07-170908	PW1-08-170908	PW1-09-170908	PW1-10-170908
	Sample Type	N	P	FD	N	N	N	N	N	N	N	N
Analyte	PAL	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
cis-1,2-Dichloroethene	16	1 U	**1,000** J	**1,160** D	**26,800** D	**297** D	1 U	1 U	1 U	1 U	1 U	**555** D
Trichloroethene	0.54	1 U	**10.9** JD	**34.9** D	**6,520** D	**13.8** D	1 U	1 U	1 U	1 U	1 U	**15.9** D
Vinyl Chloride	0.029	1 U	**408** J	**415** D	**3,570** D	**492** D	1 U	1 U	1 U	1 U	1 U	**182** D
1,1,1-Trichloroethane	200	1 U	10 U	10 U	125 U	5 U	1 U	1 U	1 U	1 U	1 U	2.5 U
1,1-Dichloroethane	7.7	1 U	10 U	10 U	125 U	5 U	1 U	1 U	1 U	1 U	1 U	2.5 U
1,1-Dichloroethene	7	1 U	10 U	10 U	**108** JD	5 U	1 U	1 U	1 U	1 U	1 U	1.76 JD
1,2-Dichloroethane	0.48	1 U	10 U	10 U	125 U	5 U	1 U	1 U	1 U	1 U	1 U	2.5 U
Tetrachloroethene	5	1 U	10 U	10 U	125 U	5 U	1 U	1 U	1 U	1 U	1 U	2.5 U
trans-1,2-Dichloroethene	100	1 U	7.25 JD	10.3 JD	**194** JD	5.91 JD	1 U	1 U	1 U	1 U	1 U	3.68 JD

Notes

Samples analyzed using EPA Method 8260C.

FD - Field Duplicate

P – Parent sample of field duplicate

N – Sample is not part of a field duplicate pair

PAL - Project Action Limit

D - The reported value is from a dilution.

JD - The reported value is an estimated concentration./The reported value is from a dilution.

U - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description).

J - The reported value is an estimated concentration.

Underlined values represent analytes not detected at or above the stated limit, which exceeds the PAL.

Bolded values indicate that the reported concentration exceeds the PAL. µg/L - micrograms per liter

Table D-15. OU 1 2017 cVOCs in Surface Water Samples (μg/L)

	Location Name	SW1-01	SW1-02	SW1-03	SW1-04	SW1-05	SW1-06	SW1-06
	Sample Name	SW1-01-171026	SW1-02-171026	SW1-03-171026	SW1-04-171026	SW1-05-171026	SW1-06-171026	FD-171026-02
	Sample Type	N	N	N	N	N	P	FD
Analyte	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
cis-1,2-Dichloroethene	600	**10,600** D	**2,500** D	170 D	**744** D	527 D	293 D	319 D
Trichloroethene	0.382	**2,580** D	**305** D	**28.8** D	**115** D	**79.8** D	**44.9** D	**49.1** D
Vinyl Chloride	0.021	**981** D	**399** D	**1.86** JD	**32.5** D	**17.1** D	**5.89** D	**5.54** D
1,1,1-Trichloroethane	47,000	50 U	25 U	1 U	5 U	2.5 U	2.5 U	2.5 U
1,1-Dichloroethane	9.3	50 U	25 U	1 U	5 U	2.5 U	2.5 U	2.5 U
1,1-Dichloroethene	1,200	50 U	25 U	1 U	5 U	2.5 U	2.5 U	2.5 U
1,2-Dichloroethane	9.3	50 U	25 U	1 U	5 U	2.5 U	2.5 U	2.5 U
Tetrachloroethene	4.9	50 U	25 U	1 U	5 U	2.5 U	2.5 U	2.5 U
trans-1,2-Dichloroethene	600	47.2 JD	25 U	0.789 JD	3.78 JD	2.8 JD	1.67 JD	1.84 JD

Table D-15. OU 1 2017 cVOCs in Surface Water Samples (µg/L)

	Location Name	SW1-07	SW1-08	SW1-09	SW1-10	SW1-11	SW1-12
	Sample Name	SW1-07-171026	SW1-08-171026	SW1-09-171026	SW1-10-171026	SW1-11-171026	SW1-12-171026
	Sample Type	N	N	N	N	N	N
Analyte	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
cis-1,2-Dichloroethene	600	62 D	50.5 D	41.1 D	**6,640** D	246 D	229 D
Trichloroethene	0.382	**10.1** D	**9.18** D	**58.6** D	25 U	**10.3** D	**9.33** D
Vinyl Chloride	0.021	**0.606** JD	1 U	**9.62** D	**4,330** D	**51.8** D	**45.3** D
1,1,1-Trichloroethane	47,000	1 U	1 U	1 U	25 U	2.5 U	2.5 U
1,1-Dichloroethane	9.3	1 U	1 U	1 U	25 U	2.5 U	2.5 U
1,1-Dichloroethene	1,200	1 U	1 U	0.644 JD	13.3 JD	2.5 U	2.5 U
1,2-Dichloroethane	9.3	1 U	1 U	1 U	25 U	2.5 U	2.5 U
Tetrachloroethene	4.9	1 U	1 U	1 U	25 U	2.5 U	2.5 U
trans-1,2-Dichloroethene	600	1 U	1 U	1 U	53.7 D	1.29 JD	1.42 JD

Notes:

Samples analyzed using EPA Method 8260C.

N – Sample is not part of a field duplicate pair

FD - Duplicate

P – Parent Sample of field duplicate

PAL - Project Action Limit

D - The reported value is from a dilution.

JD - The reported value is an estimated concentration. The reported value is from a dilution.

U - The analyte was not detected at or above the stated limit. (Sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description).

Underlined values represent analytes not detected at or above the stated limit, which exceeds the PAL.

Bolded values indicate that the reported concentration exceeds the PAL. µg/L - micrograms per liter

Table D-16. OU 1 2017 cVOCs in Stormwater Samples (µg/L)

	Location Name	08-705-STORMW		MH-STORMW			
	Sample Name	08-705-STORMW-171115		FD-171115-01		MH-STORMW-171115	
	Sample Type	N		FD		P	
Analyte	PAL	Result		Result		Result	
cis-1,2-Dichloroethene	600	1.14	JD	1	U	1	U
Trichloroethene	0.382	<u>1</u>	U	<u>1</u>	U	<u>1</u>	U
Vinyl Chloride	0.021	<u>1</u>	U	<u>1</u>	U	<u>1</u>	U
1,1,1-Trichloroethane	47,000	1	U	1	U	1	U
1,1-Dichloroethane	9.3	1	U	1	U	1	U
1,1-Dichloroethene	1,200	1	U	1	U	1	U
1,2-Dichloroethane	9.3	1	U	1	U	1	U
Tetrachloroethene	4.9	1	U	1	U	1	U
trans-1,2-Dichloroethene	600	1	U	1	U	1	U

Notes:

Samples analyzed using EPA Method 8260C.

FD - Field Duplicate

P – Parent sample of a field duplicate pair

N – Sample is not part of a field duplicate pair

PAL - Project Action Limit

U - The analyte was analyzed but not detected at or above the stated limit. (Sometimes validators will elevate the limit due to the "B" qual using the 5x/10x rule so this definition is different than the lab description).

JD - The reported value is an estimated concentration. The reported value is from a dilution.

µg/L - micrograms per liter

<u>Underlined</u> values represent analytes not detected at or above the stated limit, which exceeds the PAL.

Bolded values indicate that the reported concentration exceeds the PAL.

Table D-17. Summary of Analytical Results for cVOCs, Methane, and Helium in Soil Gas Samples

Sample ID:	Soil Gas Screening Level		SV-01	SV-02	SV-03	SV-04	SV-05	SV-06	SV-11	SV-12		SV-13
Sample Date:	Ecology MTCA	EPA[b]	8/30/2016	8/30/2016	8/30/2016	8/30/2016	8/30/2016	8/30/2016	9/8/2016	9/8/2016		9/8/2016
Other:	Method B[a]										DUP	
Chlorinated Volatile Organic Compounds (ug/m3)												
1,1-Dichloroethane	52	260	21	3.2 J	2.9 J	3.3 J	0.64 U	25 U	24 U	24 U	39 U	2.3 U
Chloroethane	NE	NE	4.4 J	4.1	3.4 U	3.7 U	0.61 U	24 U	23 U	22 U	38 U	0.98 J
Tetrachloroethene	320	1,600	3.7 U	2.6 U	3.4 U	3.7 U	0.42 J	24 U	23 U	22 U	38 U	6
trans-1,2-Dichloroethene	NE	NE	310	29	5.5	5.4	0.64 U	68	24 U	24 U	39 U	89
1,1-Dichloroethene	3,050	29,000	140	49	7.5	3.9 U	0.66 U	130	24 U	24 U	40 U	39
1,2-Dichloroethane	3.2	16	3.9 U	2.8 U	3.6 U	3.8 U	0.42 J	25 U	24 U	24 U	39 U	2.3 U
1,1,1-Trichloroethane	76,000	730,000	3.8 U	2.7 U	3.5 U	3.7 U	0.63 U	24 U	23 U	23 U	39 U	2.2 U
Trichloroethene	12	100	**120**	**79**	**22**	3.7 U	0.23 J	**210**	23 U	**15 J**	**16 J**	**420**
cis-1,2-Dichloroethene	NE	NE	1,900 D	220	110	23	0.66 U	470	11 J	42	43 J	760 D
Vinyl Chloride	9.3	93	**9,100 D**	**150**	**13**	**150**	0.61 U	**1,400**	23 U	**82**	**89**	**39**
Methane (mg/m^3)	NE	NE	60,000	100,000	36,000	130,000	4.6	150,000	190,000	19,000	19,000	2,200
Helium (ppmv)[c]	NE	NE	NA	NA	NA	NA	NA	NA	92	2,800	5,200	6.7
TWA Helium (ppmv in shroud)[d]	NE	NE	NA	NA	NA	NA	NA	NA	38,000	60,700	70,200	77,000
Helium (% as ratio)[e]	NA		NA	NA	NA	NA	NA	NA	0.24	4.6	7.4	0.0087

Notes:
Bold value indicates that the reported result exceeds the lowest soil gas screening level.
Shaded value indicates the reporting limit exceeds the lowest soil gas screening level.
[a]Model Toxics Control Act (MTCA) Cleanup Regulation, WAC 173-340. MTCA values are from Ecology website CLARC tables dated August 2015. (https://fortress.wa.gov/ecy/clarc/CLARCDataTables.aspx)
[b] United States Environmental Protection Agency (USEPA) Vapor Intrusion Screening Levels (VISLs) from Vapor Intrusion Screening Level Calculator with May 2016 Regional Screening Levels. (https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-levels-visls).
[c] Helium concentration within sampling shroud enclosing the sampling apparatus was measured in field at the time of sampling. Time-weighted average of concentrations throughout the duration of sampling was used comparison to the laboratory results (Appendix H).
[d] Values converted from mg/m^3.
[e] Helium concentration in sample canister expressed as a percentage of the concentration in the sampling shroud at the time of sampling. Leak tests results are considered passing results if the percentage is less than 10 perce
% - percent
D - reported result is from a dilution
EPA - U.S. Environmental Protection Agency
J - estimated value
ug/m^3 - micrograms per cubic meter
mg/m3 - milligrams per cubic meter
MTCA - Model Toxics Control Act
NA - not applicable
NE - not established
ppmv - parts per million by volume
DUP - field duplicate sample
TWA - time-weighted average
U - compound was analyzed for but not detected above the reporting limit shown.
VOC - volatile organic compound

Table D-18. OU 1 2018 Vapor Intrusion Sampling Results – Building 916

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air - Indoor (µg/m³)	40	2	NE	60	200	2.8	5	3,280,164
				PAL Soil Gas – Sub-slab (µg/m3)	1330	66.7	NE	2000	6670	93.3	167	3,280,164
Location Name	Sample Name	Sample Type	Collect Date	Description	Result (µg/m³)							
March												
B916-IA-1	OU1-B916-IA-1-180320	P	3/20/2018	Air - Indoor	0.12	0.014 U	0.034 J	0.013 J	0.078	0.02 J	0.049 J	2,200
B916-IA-1	OU1-B916-IA-2-180320	FD	3/20/2018	Air - Indoor	0.099	0.012 U	0.033 J	0.011 U	0.073	0.017 J	0.053 J	2,100
B916-IA-1				Air - Indoor- Corrected	0.077	0	0	0	0.067	0.009 J	0.031 J	200
B916-SS-1	OU1-B916-SS-1-180321	P	3/21/2018	Soil Gas – Sub-slab	0.82 U	0.82 U	0.94 U	1.1 U	1 U	1 U	0.94 U	3,400
B916-SS-1	OU1-B916-SS-2-180321	FD	3/21/2018	Soil Gas – Sub-slab	0.86 U	1 J	0.98 U	1.2 U	1 U	1 U	0.98 U	3,300
OA-4	OU1-OA-4-180320	N	3/20/2018	Air - Outdoor	0.043	0.035	0.043	0.015 J	0.011 J	0.011 J	0.022 J	2,000
July												
B916-IA-1	OU1-B916-IA-1-180724	P	7/24/2018	Air - Indoor	0.029 J	0.035 U	0.035 U	0.037 U	0.021 J	0.052	0.028 J	2,000
B916-IA-1	OU1-B916-IA-2-180724	FD	7/24/2018	Air - Indoor	0.033 J	0.033 U	0.033 U	0.035 U	0.024 J	0.052	0.034 J	1,800
B916-IA-1				Air - Indoor- Corrected	0	0.033 U	0.033 U	0.035 U	0.024 J	0.052	0.001 J	100
B916-SS-1	OU1-B916-SS-1-180725	P	7/25/2018	Soil Gas – Sub-slab	0.45 J	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	690
B916-SS-1	OU1-B916-SS-2-180725	FD	7/25/2018	Soil Gas – Sub-slab	0.35 J	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	800
OA-5	OU1-OA-5-180724	N	7/24/2018	Air - Outdoor	0.064 J	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.033 J	1,900

Notes:

[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.

Bold text indicates a concentration that exceeds the PAL

FD – field duplicate; µg/m³ – micrograms per cubic meter; N – normal sample, with no paired field duplicate; NE – not established; P – parent sample of field duplicate; PAL – project action limit

Decision rules:

For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.

When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.

If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)

If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air – Outdoor air

Table D-19. OU 1 2018 Vapor Intrusion Sampling Results – Building 944

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air – Indoor (µg/m^3)	**40**	**2**	**NE**	**60**	**200**	**2.8**	**5**	**3,280,164**
				PAL Soil Gas – Sub-slab (µg/m3)	**1330**	**66.7**	**NE**	**2000**	**6670**	**93.3**	**167**	**3,280,164**
Location Name	**Sample Name**	**Sample Type**	**Collect Date**	**Description**	**Result (µg/m^3)**							
March												
B944-IA-1	OU1-B944-IA-1-180320	P	3/20/2018	Air - Indoor	0.063	0.013 U	0.06	0.011 U	0.013 U	0.012 U	0.2	1,900
B944-IA-1	OU1-B944-IA-2-180320	FD	3/20/2018	Air - Indoor	0.059	0.012 U	0.058	0.011 U	0.013 U	0.011 U	0.023 J	1,900
				Air - Indoor- Corrected	0.02	0	0.017	0	0.013 U	0.011 U	0.178	0
B944-SS-1	OU1-B944-SS-1-180321	P	3/21/2018	Soil Gas – Sub-slab	0.56 U	0.56 U	0.64 U	0.76 U	0.68 U	0.68 U	0.64 U	1,700
B944-SS-1	OU1-B944-SS-2-180321	FD	3/21/2018	Soil Gas – Sub-slab	0.55 U	0.55 U	0.62 U	0.74 U	0.66 U	0.66 U	0.62 U	1,700
OA-4	OU1-OA-4-180320	N	3/20/2018	Air - Outdoor	0.043	0.035	0.043	0.015 J	0.011 J	0.011 J	0.022 J	2,000
July												
B944-IA-1	OU1-B944-IA-1-180724	P	7/24/2018	Air - Indoor	0.075	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.071 J	1,900
B944-IA-1	OU1-B944-IA-2-180724	FD	7/24/2018	Air - Indoor	0.074	0.031 U	0.031 U	0.032 U	0.031 U	0.031 U	0.06 J	1,800
				Air - Indoor- Corrected	0.011	0.031 U	0.031 U	0.032 U	0.031 U	0.031 U	0.038 J	0
B944-SS-1	OU1-B944-SS-1-180725	P	7/25/2018	Soil Gas – Sub-slab	0.27 J	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.6 J	1,500
B944-SS-1	OU1-B944-SS-2-180725	FD	7/25/2018	Soil Gas – Sub-slab	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	1,400
OA-5	OU1-OA-5-180724	N	7/24/2018	Air - Outdoor	0.064 J	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.033 J	1,900

Notes:

[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.

Bold text indicates a concentration that exceeds the PAL

FD - field duplicate; µg/m^3 - micrograms per cubic meter; N - normal sample, with no paired field duplicate; NE - not established; P - parent sample of field duplicate; PAL - project action limit

Decision rules:

For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.

When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.

If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)

If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air - Outdoor air

Table D-20. OU 1 2018 Vapor Intrusion Sampling Results – Building 945

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air - Indoor (µg/m^3)	40	2	NE	60	200	2.8	5	3,280,164
				PAL Soil Gas – Sub-slab (µg/m3)	1330	66.7	NE	2000	6670	93.3	167	3,280,164
Location Name	Sample Name	Sample Type	Collect Date	Description	Result (µg/m^3)							
March												
B945-IA-1	OU1-B945-IA-1-180320	P	3/20/2018	Air - Indoor	0.074	0.021 J	0.089	0.011 U	0.041	0.011 U	0.02 J	1,900
B945-IA-1	OU1-B945-IA-2-180320	FD	3/20/2018	Air - Indoor	0.069	0.024 J	0.093	0.0092 U	0.043	0.011 J	0.12 J	1,800
				Air - Indoor- Corrected	0.031	0	0.05	0	0.032	0	0.098 J	0
B945-SS-1	OU1-B945-SS-1-180321	P	3/21/2018	Soil Gas – Sub-slab	0.77 U	0.77 U	0.88 U	1 U	0.93 U	0.93 U	0.88 U	1,000
B945-SS-1	OU1-B945-SS-2-180321	FD	3/21/2018	Soil Gas – Sub-slab	0.75 U	0.75 U	0.86 U	1 U	0.91 U	0.91 U	0.86 U	1,000
OA-4	OU1-OA-4-180320	N	3/20/2018	Air - Outdoor	0.043	0.035	0.043	0.015 J	0.011 J	0.011 J	0.022 J	2,000
July												
B945-IA-1	OU1-B945-IA-1-180724	P	7/24/2018	Air - Indoor	0.041	0.033 U	0.033 U	0.035 U	0.073	0.033 U	0.068 J	2,000
B945-IA-1	OU1-B945-IA-2-180724	FD	7/24/2018	Air - Indoor	0.031 J	0.034 U	0.034 U	0.036 U	0.069	0.034 U	0.05 J	2,000
				Air - Indoor- Corrected	0	0.033 U	0.033 U	0.035 U	0.073	0.033 U	0.035 J	100
B945-SS-1	OU1-B945-SS-1-180725	P	7/25/2018	Soil Gas – Sub-slab	0.5 J	0.72 J	0.87 J	0.67 U	0.67 U	0.67 U	0.67 U	850
B945-SS-1	OU1-B945-SS-2-180725	FD	7/25/2018	Soil Gas – Sub-slab	0.5 J	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	800
OA-5	OU1-OA-5-180724	N	7/24/2018	Air - Outdoor	0.064 J	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.033 J	1,900

Notes:

[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.

Bold text indicates a concentration that exceeds the PAL

FD - field duplicate; µg/m^3 - micrograms per cubic meter; N - normal sample, with no paired field duplicate; NE - not established; P - parent sample of field duplicate; PAL - project action limit

Decision rules:

For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.

When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.

If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)

If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air - Outdoor air

Table D-21. OU 1 2018 Vapor Intrusion Sampling Results – Building 893

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air - Indoor (μg/m^3)	40	2	NE	60	200	2.8	5	3,280,164
				PAL Soil Gas – Sub-slab (μg/m3)	1330	66.7	NE	2000	6670	93.3	167	3,280,164
Location Name	Sample Name	Sample Type	Collect Date	Description	Result (μg/m^3)							
March												
B893-IA-1	OU1-B893-IA-1-180320	N	3/20/2018	Air - Indoor	0.04	0.074	0.1	0.015 J	0.013 U	0.012 U	0.019 J	2,800
				Air - Indoor- Corrected	0.011	0.074	0.1	0.015 J	0.013 U	0.012 U	0.019 J	1,000
B893-SS-1	OU1-B893-SS-1-180321	N	3/21/2018	Soil Gas – Sub-slab	5.8 U	5.8 U	6.6 U	7.8 U	7 U	7 U	6.6 U	1,100
B893-IA-2	OU1-B893-IA-2-180320	N	3/20/2018	Air - Indoor	0.042	0.018 J	0.068	0.015 J	0.013 U	0.012 U	0.038 J	2,500
				Air - Indoor- Corrected	0.013	0.018 J	0.068	0.015 J	0.013 U	0.012 U	0.038 J	700
B893-SS-2	OU1-B893-SS-2-180321	N	3/21/2018	Soil Gas – Sub-slab	210	8.2 J	8.7 U	10 U	9.2 U	9.2 U	8.7 U	1,100
B893-IA-3	OU1-B893-IA-3-180320	N	3/20/2018	Air - Indoor	0.04	0.013 J	0.047	0.017 J	0.013 U	0.011 U	0.013 J	2,200
				Air - Indoor- Corrected	0.011	0.013 J	0.047	0.017 J	0.013 U	0.011 U	0.013 J	400
B893-SS-3	OU1-B893-SS-3-180322	N	3/22/2018	Soil Gas – Sub-slab	7.8	0.87 U	1 U	1.2 U	1.1 U	1.1 U	1 U	830
B893-IA-4	OU1-B893-IA-4-180320	P	3/20/2018	Air - Indoor	0.036 J	0.013 U	0.039 J	0.014 J	0.013 U	0.012 U	0.013 U	2,200
B893-IA-4	OU1-B893-IA-8-180320	FD	3/20/2018	Air - Indoor	0.039	0.015 J	0.052 J	0.014 J	0.013 U	0.012 U	0.013 U	2,200
				Air - Indoor- Corrected	0.01	0.015	0.052 J	0.014 J	0.013 U	0.012 U	0.013 U	400
B893-SS-4	OU1-B893-SS4-180322	N	3/22/2018	Soil Gas – Sub-slab	0.82 U	0.82 U	0.94 U	1.1 U	1 U	1 U	0.94 U	840
B893-IA-5	OU1-B893-IA-5-180320	N	3/20/2018	Air - Indoor	0.04	0.025 J	0.071	0.015 J	0.012 U	0.01 U	0.037 J	2,300
				Air - Indoor- Corrected	0.011	0.025 J	0.071	0.015 J	0.012 U	0.01 U	0.037 J	500
B893-SS-5	OU1-B893-SS5-180322	N	3/22/2018	Soil Gas – Sub-slab	0.93 U	0.93 U	1.1 U	1.3 U	1.1 U	1.1 U	1.1 U	970
B893-IA-7	OU1-B893-IA-7-180320	N	3/20/2018	Air - Indoor	0.041	0.016 J	0.067	0.015 J	0.013 U	0.012 U	0.016 J	2,500
				Air - Indoor- Corrected	0.012	0.016 J	0.067	0.015 J	0.013 U	0.012 U	0.016 J	700
OA-7	OU1-OA-7-180320	N	3/20/2018	Air - Outdoor	0.029 J	0.012 U	0.013 U	0.01 U	0.012 U	0.011 U	0.012 U	1,800
B893-IA-6	OU1-B893-IA-6-180321	N	3/21/2018	Air - Indoor	0.036	0.015 J	0.084	0.011 J	0.012 U	0.01 U	0.011 U	2,100
				Air - Indoor- Corrected	0.012	0.015 J	0.051	0.011 J	0.012 U	0.01 U	0.011 U	100
B893-SS-6	OU1-B893-SS6-180322	N	3/22/2018	Soil Gas – Sub-slab	0.82 U	0.82 U	0.94 U	1.1 U	1 U	1 U	0.94 U	1,800
B893-SS-7	OU1-B893-SS-7-180321	P	3/21/2018	Soil Gas – Sub-slab	1.6 J	0.68 J	0.62 U	0.74 U	0.66 U	0.66 U	0.62 U	1,500 J
B893-SS-7	OU1-B893-SS-8-180321	FD	3/21/2018	Soil Gas – Sub-slab	1.6 J	0.83 J	0.64 U	0.76 U	0.68 U	0.68 U	0.64 U	1,100 J
OA-8	OU1-OA-8-180321	N	3/21/2018	Air - Outdoor	0.024 J	0.013 U	0.033 J	0.011 U	0.013 U	0.012 U	0.013 U	2,000

Table D-21. OU 1 2018 Vapor Intrusion Sampling Results – Building 893

				Analyte Name	**Tetrachloroethene**	**Trichloroethene**	**cis-1,2-Dichloroethene**	**trans-1,2-Dichloroethene**	**1,1-Dichloroethene**	**Vinyl chloride**	**1,4-Dioxane**	**Methane[1]**
				PAL Air - Indoor (µg/m³)	**40**	**2**	**NE**	**60**	**200**	**2.8**	**5**	**3,280,164**
				PAL Soil Gas – Sub-slab (µg/m3)	**1330**	**66.7**	**NE**	**2000**	**6670**	**93.3**	**167**	**3,280,164**
Location Name	**Sample Name**	**Sample Type**	**Collect Date**	**Description**	**Result (µg/m³)**							
July												
B893-IA-1	OU1-B893-IA-1-180724	P	7/24/2018	Air - Indoor	0.051	0.034 U	0.034 U	0.036 U	0.034 U	0.034 U	0.035 J	2,100
B893-IA-1	OU1-B893-IA-8-180724	FD	7/24/2018	Air - Indoor	0.039	0.032 U	0.032 U	0.033 U	0.032 U	0.032 U	0.037 J	2,200
				Air - Indoor- Corrected	0.021	0.032 U	0.032 U	0.033 U	0.032 U	0.032 U	0.037 J	300
B893-SS-1	OU1-B893-SS-1-180725	N	7/25/2018	Soil Gas – Sub-slab	1.1 J	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	700
B893-IA-2	OU1-B893-IA-2-180724	N	7/24/2018	Air - Indoor	0.048	0.034 U	0.034 U	0.012 J	0.034 U	0.034 U	0.42	2,100
				Air - Indoor- Corrected	0.018	0.034 U	0.034 U	0.012 J	0.034 U	0.034 U	0.42	200
B893-SS-2	OU1-B893-SS-2-180725	N	7/25/2018	Soil Gas – Sub-slab	0.47 J	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	820
B893-IA-3	OU1-B893-IA-3-180724	N	7/24/2018	Air - Indoor	0.081	0.054	0.037 U	0.039 U	0.037 U	0.037 U	0.033 J	2,000
				Air - Indoor- Corrected	0.051	0.054	0.037 U	0.039 U	0.037 U	0.037 U	0.033 J	100
B893-SS-3	OU1-B893-SS-3-180725	N	7/25/2018	Soil Gas – Sub-slab	6	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	900
B893-IA-4	OU1-B893-IA-4-180724	N	7/24/2018	Air - Indoor	0.065	0.042 U	0.042 U	0.044 U	0.042 U	0.042 U	0.049 J	2,100
				Air - Indoor- Corrected	0.035	0.042 U	0.042 U	0.044 U	0.042 U	0.042 U	0.049 J	200
B893-SS-4	OU1-B893-SS-4-180725	N	7/25/2018	Soil Gas – Sub-slab	0.95 J	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	970
B893-IA-5	OU1-B893-IA-5-180724	N	7/24/2018	Air - Indoor	0.033 J	0.032 U	0.032 U	0.033 U	0.032 U	0.032 U	0.026 J	1,900
				Air - Indoor- Corrected	0.003 J	0.032 U	0.032 U	0.033 U	0.032 U	0.032 U	0.026 J	0
B893-SS-5	OU1-B893-SS-5-180725	N	7/25/2018	Soil Gas – Sub-slab	0.46 J	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	15	740
B893-IA-6	OU1-B893-IA-6-180724	N	7/24/2018	Air - Indoor	0.044	0.034 U	0.034 U	0.035 U	0.034 U	0.034 U	0.037 J	1,900
				Air - Indoor- Corrected	0.014	0.034 U	0.034 U	0.035 U	0.034 U	0.034 U	0.004 J	0
B893-SS-6	OU1-B893-SS-6-180725	N	7/25/2018	Soil Gas – Sub-slab	1.2 J	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.46 J	1,800
B893-IA-7	OU1-B893-IA-7-180724	N	7/24/2018	Air - Indoor	0.049	0.036 U	0.036 U	0.038 U	0.036 U	0.036 U	0.038 J	2,000
				Air - Indoor- Corrected	0.019	0.036 U	0.036 U	0.038 U	0.036 U	0.036 U	0.038 J	100
B893-SS-7	OU1-B893-SS-7-180725	P	7/25/2018	Soil Gas – Sub-slab	2.6	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	1.1 J	670
B893-SS-7	OU1-B893-SS-8-180725	FD	7/25/2018	Soil Gas – Sub-slab	2.6	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	580
OA-4	OU1-OA-4-180724	N	7/24/2018	Air - Outdoor	0.03 J	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.033 U	1,900

Notes:

[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.

Bold text indicates a concentration that exceeds the PAL

FD - field duplicate; µg/m³ - micrograms per cubic meter; N - normal sample, with no paired field duplicate; NE - not established; P - parent sample of field duplicate; PAL - project action limit

Decision rules:

For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.

When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.

If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)

If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air - Outdoor air

Table D-22. OU 1 2018 Vapor Intrusion Sampling Results – Building 820

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air - Indoor (μg/m^3)	40	2	NE	60	200	2.8	5	3,280,164
				PAL Soil Gas – Sub-slab (μg/m3)	1330	66.7	NE	2000	6670	93.3	167	3,280,164
Location Name	Sample Name	Sample Type	Collect Date	Description	Result (μg/m^3)							
March												
B820-IA-1	OU1-B820-IA-1-180320	N	3/20/2018	Air - Indoor	0.032 J	0.013 U	0.036 J	0.011 U	0.013 U	0.011 U	0.013 U	1,900
				Air - Indoor- Corrected	0.005 J	0.013 U	0.036 J	0.011 U	0.013 U	0.011 U	0.013 U	100
B820-SS-1	OU1-B820-SS-1-180322	P	3/22/2018	Soil Gas – Sub-slab	2.2	18 J	3.2 J	0.74 U	0.66 U	0.66 U	1.6 J	1,000
B820-SS-1	OU1-B820-SS-4-180322	FD	3/22/2018	Soil Gas – Sub-slab	2.8	**96** J	12 J	0.89 U	0.79 U	0.79 U	2 J	930
B820-IA-2	OU1-B820-IA-2-180320	P	3/20/2018	Air - Indoor	0.032 J	0.015 J	0.046	0.011 U	0.012 U	0.011 U	0.012 U	1,800
B820-IA-2	OU1-B820-IA-4-180320	FD	3/20/2018	Air - Indoor	0.096	0.016 J	0.036	0.01 U	0.012 U	0.011 U	0.012 U	1,900
				Air - Indoor- Corrected	0.069	0.016 J	0.046	0.011 U	0.012 U	0.011 U	0.012 U	100
B820-SS-2	OU1-B820-SS-2-180322	N	3/22/2018	Soil Gas – Sub-slab	2.6	0.58 U	0.67 U	0.79 U	0.71 U	0.71 U	0.83 J	1,100
B820-IA-3	OU1-B820-IA-3-180320	N	3/20/2018	Air - Indoor	0.039	0.016 J	0.045	0.0099 U	0.012 U	0.01 U	0.073 J	1,900
				Air - Indoor- Corrected	0.012	0.016 J	0.045	0.0099 U	0.012 U	0.01 U	0.073 J	100
B820-SS-3	OU1-B820-SS-3-180322	N	3/22/2018	Soil Gas – Sub-slab	0.56 U	0.56 U	0.64 U	0.76 U	0.68 U	0.68 U	0.64 U	1,100
OA-6	OU1-OA-6-180320	N	3/20/2018	Air - Outdoor	0.027 J	0.012 U	0.013 U	0.01 U	0.012 U	0.01 U	0.012 U	1,800
July												
B820-IA-1	OU1-B820-IA-1-180724	N	7/24/2018	Air - Indoor	0.046	0.035 U	0.035 U	0.037 U	0.035 U	0.035 U	0.069 J	1,800
				Air - Indoor- Corrected	0.013	0.035 U	0.035 U	0.037 U	0.035 U	0.035 U	0.015 J	0
B820-SS-1	OU1-B820-SS-1-180725	P	7/25/2018	Soil Gas – Sub-slab	4.6	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.42 J	970 J
B820-SS-1	OU1-B820-SS-4-180725	FD	7/25/2018	Soil Gas – Sub-slab	4.7	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	0.55 J	740 J
B820-IA-2	OU1-B820-IA-2-180724	P	7/24/2018	Air - Indoor	0.11	0.013 J	0.029 U	0.063	0.029 U	0.029 U	0.023 J	2,000
B820-IA-2	OU1-B820-IA-4-180724	FD	7/24/2018	Air - Indoor	0.036 J	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.035 J	1,900
				Air - Indoor- Corrected	0.077	0.013 J	0.029 U	0.063	0.029 U	0.029 U	0	200
B820-SS-2	OU1-B820-SS-2-180725	N	7/25/2018	Soil Gas – Sub-slab	4.5	0.64 U	0.64 U	0.64 U	0.64 U	0.64 U	0.5 J	860
B820-IA-3	OU1-B820-IA-3-180724	N	7/24/2018	Air - Indoor	0.044	0.034 U	0.034 U	0.036 U	0.034 U	0.034 U	0.022 J	2,000
				Air - Indoor- Corrected	0.011	0.034 U	0.034 U	0.036 U	0.034 U	0.034 U	0	200
B820-SS-3	OU1-B820-SS-3-180725	N	7/25/2018	Soil Gas – Sub-slab	1.4 J	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.45 J	750
OA-3	OU1-OA-3-180724	N	7/24/2018	Air - Outdoor	0.033 J	0.034 U	0.034 U	0.036 U	0.034 U	0.034 U	0.054 J	1,800

Notes:

[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.

Bold text indicates a concentration that exceeds the PAL

FD - field duplicate; μg/m^3 - micrograms per cubic meter; N - normal sample, with no paired field duplicate; NE - not established; P - parent sample of field duplicate; PAL - project action limit

Decision rules:

For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.

When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.

If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)

If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air - Outdoor air

Table D-23. OU 1 2018 Vapor Intrusion Sampling Results – Building 950

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air - Indoor (μg/m³)	40	2	NE	60	200	2.8	5	3,280,164
				PAL Soil Gas – Sub-slab (μg/m3)	1330	66.7	NE	2000	6670	93.3	167	3,280,164
Location Name	Sample Name	Sample Type	Collect Date	Description	Result (μg/m³)							
March												
B950-IA-1	OU1-B950-IA-1-180320	P	3/20/2018	Air - Indoor	0.15	0.049	0.24	0.011 U	0.013 U	0.011 U	0.085 J	2,100
B950-IA-1	OU1-B950-IA-2-180320	FD	3/20/2018	Air - Indoor	0.14	0.061	0.24	0.01 U	0.012 U	0.019 J	0.038 J	2,000
				Air - Indoor- Corrected	0.123	0.061	0.24	0.01 U	0.012 U	0.019 J	0.085 J	300
B950-SS-1	OU1-B950-SS-1-180323	P	3/23/2018	Soil Gas – Sub-slab	5.9	0.56 U	0.64 U	0.76 U	0.68 U	0.68 U	0.84 J	480,000
B950-SS-1	OU1-B950-SS-2-180323	FD	3/23/2018	Soil Gas – Sub-slab	7.3	0.54 U	0.62 U	0.74 U	0.66 U	0.66 U	0.85 J	560,000
OA-6	OU1-OA-6-180320	N	3/20/2018	Air - Outdoor	0.027 J	0.012 U	0.013 U	0.01 U	0.012 U	0.01 U	0.012 U	1,800
July												
B950-IA-1	OU1-B950-IA-1-180724	P	7/24/2018	Air - Indoor	0.37	0.022 J	0.035 J	0.018 J	0.035 U	0.035 U	0.035 J	1,900
B950-IA-1	OU1-B950-IA-2-180724	FD	7/24/2018	Air - Indoor	0.45	0.023 J	0.034 J	0.016 J	0.033 U	0.033 U	0.034 J	1,900
				Air - Indoor- Corrected	0.417	0.023 J	0.035 J	0.018 J	0.033 U	0.033 U	0	100
B950-SS-1	OU1-B950-SS-1-180726	P	7/26/2018	Soil Gas – Sub-slab	5.3	0.37 J	0.69 U	0.69 U	0.69 U	0.69 U	0.69 U	**3,400,000**
B950-SS-1	OU1-B950-SS-2-180726	FD	7/26/2018	Soil Gas – Sub-slab	5.5	0.41 J	0.73 U	0.73 U	0.73 U	0.73 U	1 J	**3,500,000**
OA-3	OU1-OA-3-180724	N	7/24/2018	Air - Outdoor	0.033 J	0.034 U	0.034 U	0.036 U	0.034 U	0.034 U	0.054 J	1,800

Notes:
[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.
Bold text indicates a concentration that exceeds the PAL
FD - field duplicate; μg/m³ - micrograms per cubic meter; N - normal sample, with no paired field duplicate; NE - not established; P - parent sample of field duplicate; PAL - project action limit

Decision rules:
For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.
When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.
When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.
When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.
If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)
If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air - Outdoor air

Table D-24. OU 1 2018 Vapor Intrusion Sampling Results – Building 951

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air - Indoor (µg/m³)	**40**	**2**	**NE**	**60**	**200**	**2.8**	**5**	**3,280,164**
				PAL Soil Gas – Sub-slab (µg/m³)	**1330**	**66.7**	**NE**	**2000**	**6670**	**93.3**	**167**	**3,280,164**
Location Name	**Sample Name**	**Sample Type**	**Collect Date**	**Description**	**Result (µg/m³)**							
March												
B951-IA-1	OU1-B951-IA-1-180320	N	3/20/2018	Air - Indoor	0.08	0.042	0.27	0.0096 U	0.011 U	0.019 J	0.063 J	2,100
				Air - Indoor- Corrected	0.053	0.042	0.27	0.0096 U	0.011 U	0.019 J	0.063 J	300
B951-SS-1	OU1-B951-SS-1-180323	N	3/23/2018	Soil Gas – Sub-slab	0.55 U	0.55 U	0.63 U	0.75 U	0.67 U	0.67 U	0.63 U	1,300
B951-IA-2	OU1-B951-IA-2-180320	N	3/20/2018	Air - Indoor	0.11	0.043	0.24	0.011 U	0.013 U	0.015 J	0.013 U	1,900
				Air - Indoor- Corrected	0.083	0.043	0.24	0.011 U	0.013 U	0.015 J	0.013 U	100
B951-SS-2	OU1-B951-SS-2-180323	N	3/23/2018	Soil Gas – Sub-slab	0.54 U	0.54 U	0.62 U	0.74 U	0.66 U	0.66 U	0.62 U	3,800
B951-IA-3	OU1-B951-IA-3-180320	P	3/20/2018	Air - Indoor	0.077	0.051	0.29	0.01 U	0.012 U	0.019 J	0.03 J	2,000
B951-IA-3	OU1-B951-IA-4-180320	FD	3/20/2018	Air - Indoor	0.082	0.048	0.32	0.01 U	0.012 U	0.021 J	0.069 J	2,000
				Air - Indoor- Corrected	0.055	0.051	0.32	0.01 U	0.012 U	0.021 J	0.069 J	200
B951-SS-3	OU1-B951-SS-3-180323	P	3/23/2018	Soil Gas – Sub-slab	6.8	3.9	1.1 J	0.73 U	0.65 U	0.65 U	0.61 U	1,400
B951-SS-3	OU1-B951-SS-4-180323	FD	3/23/2018	Soil Gas – Sub-slab	0.54 U	0.54 U	0.61 U	0.73 U	0.65 U	0.65 U	0.61 U	1,400
OA-6	OU1-OA-6-180320	N	3/20/2018	Air - Outdoor	0.027 J	0.012 U	0.013 U	0.01 U	0.012 U	0.01 U	0.012 U	1,800
July												
B951-IA-1	OU1-B951-IA-1-180724	N	7/24/2018	Air - Indoor	0.11	0.032 U	0.067	0.033 U	0.032 U	0.032 U	0.11 J	1,900
				Air - Indoor- Corrected	0.077	0.032 U	0.067	0.033 U	0.032 U	0.032 U	0.056 J	100
B951-SS-1	OU1-B951-SS-1-180726	N	7/26/2018	Soil Gas – Sub-slab	0.54 J	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	660
B951-IA-2	OU1-B951-IA-2-180724	N	7/24/2018	Air - Indoor	0.1	0.032 U	0.061	0.033 U	0.032 U	0.032 U	0.05 J	2,100
				Air - Indoor- Corrected	0.067	0.032 U	0.061	0.033 U	0.032 U	0.032 U	0	300
B951-SS-2	OU1-B951-SS-2-180726	N	7/26/2018	Soil Gas – Sub-slab	0.37 J	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	0.68 U	910
B951-IA-3	OU1-B951-IA-3-180724	P	7/24/2018	Air - Indoor	0.13 J	0.023 J	0.071	0.026 J	0.04 U	0.04 U	0.046 J	2,000
B951-IA-3	OU1-B951-IA-4-180724	FD	7/24/2018	Air - Indoor	0.089 J	0.013 J	0.085	0.033 U	0.032 U	0.013 J	0.074 J	2,100
				Air - Indoor- Corrected	0.097 J	0.023 J	0.085	0.026 J	0.032 U	0.013 J	0.02 J	300
B951-SS-3	OU1-B951-SS-3-180726	P	7/26/2018	Soil Gas – Sub-slab	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	650
B951-SS-3	OU1-B951-SS-4-180726	FD	7/26/2018	Soil Gas – Sub-slab	0.93 J	0.61 U	0.61 U	0.5 J	0.61 U	0.61 U	0.61 U	780
OA-3	OU1-OA-3-180724	N	7/24/2018	Air - Outdoor	0.033 J	0.034 U	0.034 U	0.036 U	0.034 U	0.034 U	0.054 J	1,800

Notes:

[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.

Bold text indicates a concentration that exceeds the PAL

FD - field duplicate; µg/m³ - micrograms per cubic meter; N - normal sample, with no paired field duplicate; NE - not established; P - parent sample of field duplicate; PAL - project action limit

Decision rules:

For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.

When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.

If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)

If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air - Outdoor air

Table D-25. OU 1 2018 Vapor Intrusion Sampling Results – Building 1051

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air - Indoor (μg/m^3)	40	2	NE	60	200	2.8	5	3,280,164
				PAL Soil Gas – Sub-slab (μg/m^3)	1330	66.7	NE	2000	6670	93.3	167	3,280,164
Location Name	Sample Name	Sample Type	Collect Date	Description	Result (μg/m^3)							
March												
B1051-IA-1	OU1-B1051-IA-1-180319	N	3/19/2018	Air - Indoor	0.05	0.055	0.3	0.02 J	0.015 U	0.018 J	0.015 U	1,900
				Air - Indoor- Corrected	0.016	0.027	0.238	0.003 J	0.015 U	0.018 J	0.015 U	100
B1051-IA-2	OU1-B1051-IA-2-180319	P	3/19/2018	Air - Indoor	0.04	0.059	0.31	0.02 J	0.013 U	0.018 J	0.013 U	1,900
B1051-IA-2	OU1-B1051-IA-8-180319	FD	3/19/2018	Air - Indoor	0.038	0.057	0.31	0.019 J	0.013 U	0.019 J	0.014 J	1,900
				Air - Indoor- Corrected	0.006	0.031	0.248	0.003 J	0.013 U	0.018 J	0.013 J	100
B1051-IA-3	OU1-B1051-IA-3-180319	N	3/19/2018	Air - Indoor	0.036 J	0.059	0.33	0.02 J	0.013 U	0.019 J	0.018 J	2,100
				Air - Indoor- Corrected	0.002 J	0.031	0.268	0.003 J	0.013 U	0.019 J	0.018 J	300
B1051-IA-4	OU1-B1051-IA-4-180319	N	3/19/2018	Air - Indoor	0.087	0.052	0.27	0.026 J	0.021 J	0.016 J	0.012 U	1,900
				Air - Indoor- Corrected	0.053	0.024	0.208	0.009 J	0.021 J	0.016 J	0.012 U	100
B1051-IA-5	OU1-B1051-IA-5-180319	N	3/19/2018	Air - Indoor	0.052	0.078	0.34	0.023 J	0.012 U	0.021 J	0.016 J	1,900
				Air - Indoor- Corrected	0.018	0.05	0.278	0.006 J	0.012 U	0.021 J	0.016 J	100
B1051-IA-6	OU1-B1051-IA-6-180319	N	3/19/2018	Air - Indoor	0.05	0.032 J	0.17	0.066	0.063	0.012 U	0.014 U	2,000
				Air - Indoor- Corrected	0.016	0.004 J	0.108	0.049	0.063	0.012 U	0.014 U	200
B1051-IA-7	OU1-B1051-IA-7-180319	N	3/19/2018	Air - Indoor	0.035 J	0.047	0.25	0.022 J	0.013 U	0.015 J	0.013 U	1,900
				Air - Indoor- Corrected	0.001 J	0.019	0.188	0.005 J	0.013 U	0.015 J	0.013 U	100
B1051-SV-1	OU1-B1051-SV-1-180320	N	3/20/2018	Soil gas	0.53 U	0.53 U	0.6 U	0.71 U	0.64 U	0.64 U	0.6 U	1,700
B1051-SV-2	OU1-B1051-SV-2-180320	N	3/20/2018	Soil gas	1.6 U	1.6 U	1.8 U	2.2 U	2 U	2 U	1.8 U	1,600
B1051-SV-3	OU1-B1051-SV-3-180320	N	3/20/2018	Soil gas	0.51 U	0.51 U	0.58 U	0.69 U	0.62 U	0.62 U	0.58 U	1,100
B1051-SV-4	OU1-B1051-SV-4-180320	N	3/20/2018	Soil gas	1.4 U	1.4 U	1.6 U	1.9 U	1.7 U	1.7 U	1.6 U	970
B1051-SV-5	OU1-B1051-SV-5-180320	N	3/20/2018	Soil gas	1.6 U	1.6 U	1.8 U	2.1 U	1.9 U	1.9 U	1.8 U	890
B1051-SV-6	OU1-B1051-SV-6-180320	N	3/20/2018	Soil gas	0.5 U	0.5 U	0.57 U	0.68 U	0.61 U	0.61 U	0.57 U	730
B1051-SV-7	OU1-B1051-SV-7-180320	N	3/20/2018	Soil gas	0.51 U	0.51 U	0.58 U	0.69 U	0.62 U	0.62 U	0.58 U	1,600
B1051-SV-8	OU1-B1051-SV-8-180320	P	3/20/2018	Soil gas	0.5 U	0.5 U	0.57 U	0.67 U	0.6 U	0.6 U	0.57 U	930
B1051-SV-8	OU1-B1051-SV-9-180320	FD	3/20/2018	Soil gas	0.54 U	0.54 U	0.62 U	0.74 U	0.66 U	0.66 U	0.62 U	1,200
OA-2	OU1-OA-2-180319	N	3/19/2018	Air - Outdoor	0.034 J	0.028 J	0.062	0.017 J	0.012 U	0.01 U	0.011 U	1,800

Table D-25. OU 1 2018 Vapor Intrusion Sampling Results – Building 1051

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air - Indoor (μg/m^3)	40	2	NE	60	200	2.8	5	3,280,164
				PAL Soil Gas – Sub-slab (μg/m^3)	1330	66.7	NE	2000	6670	93.3	167	3,280,164
Location Name	**Sample Name**	**Sample Type**	**Collect Date**	**Description**	**Result (μg/m^3)**							
July												
B1051-IA-1	OU1-B1051-IA-1-180724	N	7/24/2018	Air - Indoor	0.047	0.031 U	0.031 U	0.013 J	0.031 U	0.031 U	0.015 J	1,900
B1051-IA-1				Air - Indoor- Corrected	0.014	0.031 U	0.031 U	0.013 J	0.031 U	0.031 U	0	100
B1051-IA-2	OU1-B1051-IA-2-180724	P	7/24/2018	Air - Indoor	0.042	0.031 U	0.031 U	0.013 J	0.031 U	0.031 U	0.013 J	2,000
B1051-IA-2	OU1-B1051-IA-8-180724	FD	7/24/2018	Air - Indoor	0.055	0.035 U	0.035 U	0.012 J	0.035 U	0.035 U	0.035 U	2,000
B1051-IA-2				Air - Indoor- Corrected	0.022	0.031 U	0.031 U	0.013 J	0.031 U	0.031 U	0	200
B1051-IA-3	OU1-B1051-IA-3-180724	N	7/24/2018	Air - Indoor	0.048	0.033 U	0.023 J	0.028 J	0.033 U	0.033 U	0.015 J	2,000
B1051-IA-3				Air - Indoor- Corrected	0.015	0.033 U	0.023 J	0.028 J	0.033 U	0.033 U	0	200
B1051-IA-4	OU1-B1051-IA-4-180724	N	7/24/2018	Air - Indoor	0.11	0.023 J	0.033 U	0.028 J	0.033 U	0.033 U	0.039 J	1,900
B1051-IA-4				Air - Indoor- Corrected	0.077	0.023 J	0.033 U	0.028 J	0.033 U	0.033 U	0.021 J	100
B1051-IA-5	OU1-B1051-IA-5-180724	N	7/24/2018	Air - Indoor	0.38	0.033 U	0.033 U	0.079	0.033 U	0.033 U	0.033 U	1,900
B1051-IA-5				Air - Indoor- Corrected	0.347	0.033 U	0.033 U	0.079	0.033 U	0.033 U	0.033 U	100
B1051-IA-6	OU1-B1051-IA-6-180724	N	7/24/2018	Air - Indoor	0.038 J	0.033 U	0.033 U	0.012 J	0.033 U	0.033 U	0.033 U	2,100
B1051-IA-6				Air - Indoor- Corrected	0.005 J	0.033 U	0.033 U	0.012 J	0.033 U	0.033 U	0.033 U	300
B1051-IA-7	OU1-B1051-IA-7-180724	N	7/24/2018	Air - Indoor	0.054	0.039 U	0.039 U	0.041 U	0.039 U	0.039 U	0.039 U	2,000
B1051-IA-7				Air - Indoor- Corrected	0.021	0.039 U	0.039 U	0.041 U	0.039 U	0.039 U	0.039 U	200
B1051-SV-1	OU1-B1051-SV-1-180723	N	7/23/2018	Soil gas	0.4 J	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	1,600
B1051-SV-2	OU1-B1051-SV-2-180723	N	7/23/2018	Soil gas	0.37 J	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	0.75 U	1,600
B1051-SV-3	OU1-B1051-SV-3-180723	N	7/23/2018	Soil gas	0.87 J	0.72 U	0.72 U	0.72 U	0.72 U	0.72 U	1.3 J	1,200
B1051-SV-4	OU1-B1051-SV-4-180723	N	7/23/2018	Soil gas	0.45 J	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	0.76 U	1,000
B1051-SV-5	OU1-B1051-SV-5-180723	N	7/23/2018	Soil gas	0.52 J	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	0.77 U	1,000
B1051-SV-6	OU1-B1051-SV-6-180723	N	7/23/2018	Soil gas	0.52 J	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	0.73 U	850
B1051-SV-7	OU1-B1051-SV-7-180723	N	7/23/2018	Soil gas	0.39 J	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	830
B1051-SV-8	OU1-B1051-SV-8-180723	P	7/23/2018	Soil gas	0.31 J	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	850
B1051-SV-8	OU1-B1051-SV-9-180723	FD	7/23/2018	Soil gas	0.7 J	0.78 U	0.78 U	0.78 U	0.78 U	0.78 U	0.55 J	850
OA-2	OU1-OA-2-180724	P	7/24/2018	Air - Outdoor	0.033 J	0.032 U	0.032 U	0.034 U	0.032 U	0.032 U	0.032 U	1,800
OA-2	OU1-OA-6-180724	FD	7/24/2018	Air - Outdoor	0.042 J	0.033 U	0.033 U	0.034 U	0.033 U	0.033 U	0.018 J	1,800

Notes:

[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.

Bold text indicates a concentration that exceeds the PAL

FD - field duplicate; μg/m^3 - micrograms per cubic meter; N - normal sample, with no paired field duplicate; NE - not established; P - parent sample of field duplicate; PAL - project action limit

Decision rules:

For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.

When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.

If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)

If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air - Outdoor air

Table D-26. OU 1 2018 Vapor Intrusion Sampling Results - Building 824

				Analyte Name	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride	1,4-Dioxane	Methane[1]
				PAL Air - Indoor (µg/m^3)	**40**	**2**	**NE**	**60**	**200**	**2.8**	**5**	**3,280,164**
				PAL Soil Gas – Sub-slab (µg/m3)	**1330**	**66.7**	**NE**	**2000**	**6670**	**93.3**	**167**	**3,280,164**
Location Name	**Sample Name**	**Sample Type**	**Collect Date**	**Description**	**Result (µg/m^3)**							
					March							
B824-IA-1	OU1-B824-IA-1-180320	P	3/20/2018	Air - Indoor	0.038	0.051	0.3	0.01 U	0.012 U	0.019 J	0.012 U	2,000
B824-IA-1	OU1-B824-IA-2-180320	FD	3/20/2018	Air - Indoor	0.033 J	0.051	0.3	0.0099 U	0.012 U	0.018 J	0.012 U	1,900
				Air - Indoor- Corrected	0.012	0.051	0.3	0.0099 U	0.012 U	0.018 J	0	0
B824-SS-1	OU1B824-SS-1-180322	P	3/22/2018	Soil Gas – Sub-slab	0.59 U	0.59 U	0.68 U	0.8 U	0.72 U	0.72 U	0.68 U	1,400
B824-SS-1	OU1-B824-SS-2-180322	FD	3/22/2018	Soil Gas – Sub-slab	0.54 U	0.54 U	0.62 U	0.74 U	0.66 U	0.66 U	0.62 U	1,300
OA-5	OU1-OA-5-180320	N	3/20/2018	Air - Outdoor	0.026 J	0.012 U	0.013 U	0.011 U	0.013 U	0.011 U	0.018 J	2,000
					July							
B824-IA-1	OU1-B824-IA-1-180724	P	7/24/2018	Air - Indoor	0.03 J	0.042 U	0.051	0.044 U	0.042 U	0.042 U	0.042 U	2,100
B824-IA-1	OU1-B824-IA-2-180724	FD	7/24/2018	Air - Indoor	0.029 J	0.034 U	0.049	0.035 U	0.034 U	0.034 U	0.034 U	1,900
				Air - Indoor- Corrected	0	0.034 U	0.049	0.035 U	0.034 U	0.034 U	0.034 U	300
B824-SS-1	OU1-B824-SS-1-180726	P	7/26/2018	Soil Gas – Sub-slab	0.4 J	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	910
B824-SS-1	OU1-B824-SS-2-180726	FD	7/26/2018	Soil Gas – Sub-slab	0.87 J	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	910
OA-1	OU1-OA-1-180724	N	7/24/2018	Air - Outdoor	0.032 J	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.019 J	1,800

Notes:

[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.

Bold text indicates a concentration that exceeds the PAL

FD - field duplicate; µg/m^3 - micrograms per cubic meter; N - normal sample, with no paired field duplicate; NE - not established; P - parent sample of field duplicate; PAL - project action limit

Decision rules:

For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.

When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.

If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)

If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air - Outdoor air

Table D-27. OU 1 2018 Vapor Intrusion Sampling Results – Building 108

				Analyte Name	**Tetrachloroethene**	**Trichloroethene**	**cis-1,2-Dichloroethene**	**trans-1,2-Dichloroethene**	**1,1-Dichloroethene**	**Vinyl chloride**	**1,4-Dioxane**	**Methane[1]**
				PAL Air - Indoor (μg/m³)	**40**	**2**	**NE**	**60**	**200**	**2.8**	**5**	**3,280,164**
				PAL Soil Gas – Sub-slab (μg/m3)	**1330**	**66.7**	**NE**	**2000**	**6670**	**93.3**	**167**	**3,280,164**
Location Name	**Sample Name**	**Sample Type**	**Collect Date**	**Description**	**Result (μg/m³)**							
March												
B108-IA-1	OU1-B108-IA-1-180319	P	3/19/2018	Air - Indoor	0.034 J	0.016 J	0.073	0.011 U	0.013 U	0.011 U	0.044 J	1,900
B108-IA-1	OU1-B108-IA-2-180319	FD	3/19/2018	Air - Indoor	0.033 J	0.02 J	0.071	0.011 J	0.012 U	0.01 U	0.061 J	1,800
				Air - Indoor- Corrected	0.005 J	0.02 J	0.073	0	0.012 U	0.011 U	0.045 J	0
B108-SS-1	OU1-B108-SS-1-180322	P	3/22/2018	Soil Gas – Sub-slab	0.56 U	0.56 U	0.64 U	0.76 U	0.68 U	0.68 U	0.64 U	850 J
B108-SS-1	OU1B108-SS-2-180322	FD	3/22/2018	Soil Gas – Sub-slab	0.86 U	0.86 U	2.5 J	1.2 U	1 U	1 U	0.98 U	1,200 J
OA-1	OU1-OA-1-180319	P	3/19/2018	Air - Outdoor	0.036 J	0.013 U	0.014 U	0.014 J	0.013 U	0.012 U	0.016 J	2,000
OA-1	OU1-OA-3-180319	FD	3/19/2018	Air - Outdoor	0.029 J	0.013 U	0.014 U	0.015 J	0.013 U	0.011 U	0.097 J	1,900
July												
B108-IA-1	OU1-B108-IA-1-180724	P	7/24/2018	Air - Indoor	0.042	0.035 U	0.02 J	0.036 U	0.035 U	0.035 U	0.32	2,000
B108-IA-1	OU1-B108-IA-2-180724	FD	7/24/2018	Air - Indoor	0.045	0.036 U	0.021 J	0.038 U	0.036 U	0.036 U	0.33	2,000
				Air - Indoor- Corrected	0.013	0.035 U	0.021 J	0.036 U	0.035 U	0.035 U	0.311	200
B108-SS-1	OU1-B108-SS-1-180726	P	7/26/2018	Soil Gas – Sub-slab	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	0.65 U	760
B108-SS-1	OU1-B108-SS-2-180726	FD	7/26/2018	Soil Gas – Sub-slab	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	880
OA-1	OU1-OA-1-180724	N	7/24/2018	Air - Outdoor	0.032 J	0.033 U	0.033 U	0.035 U	0.033 U	0.033 U	0.019 J	1,800

Notes:

[1] – Because the PAL for methane is based on the lower explosive limit (LEL), no attenuation factor was applied. That is, the PAL for both sub-slab vapor and indoor air was established as 10% LEL.

Bold text indicates a concentration that exceeds the PAL

FD - field duplicate; μg/m³ - micrograms per cubic meter; N - normal sample, with no paired field duplicate; NE - not established; P - parent sample of field duplicate; PAL - project action limit

Decision rules:

For outdoor air samples with field duplicates, the outdoor sample with the minimum concentration was used to compare to the indoor air sample.

When an analyte is not detected in outdoor air, then the maximum detected indoor air concentration is selected as the indoor air corrected value.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***below*** the detected outdoor air concentration, then the corrected indoor value is zero.

When an analyte is detected in outdoor air but not detected in indoor air and the reporting limit is ***above*** the detected outdoor air concentration, then the minimum detection limit in indoor air is selected as the corrected indoor value.

If the indoor air sample concentration is less than outdoor air concentration, then the indoor air corrected is zero (no contribution from SSV or indoor air sources; indoor air value is no different from outdoor air)

If the indoor air sample concentration is greater than outdoor air concentration, the indoor air corrected is calculated as follows: Indoor air - Outdoor air

Table D-28. 2017 Groundwater Monitoring Results for PFAS Compounds (ng/L)

Location Name		MW1-43	MW1-46	MW1-46	MW1-47	MW1-48	MW1-50	MW1-52	MW1-56	MW-57	MW1-58	MW1-58	MW1-60
Sample Name		MW1-43-171023	MW1-46-171023	FD-171023-01	MW1-47-171023	MW1-48-171024	MW1-50-171024	MW1-52-171024	MW1-56-12.0-171025	MW1-57-10.0-171025	MW1-58-9.0-171115	FD-171115-02	MW1-60-171026
Sample Type		N	P	FD	N	N	N	N	N	N	P	FD	N
Analyte	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
Perfluorooctane sulfonate (PFOS)	70	3.68 UJ	1.65 UJ	1.74 UJ	5.3 UJ	10.47 J	0.36 UJ	0.62 UJ	2.03 J	8.42	1.95 J	1.71 J	0.36 UJ
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	NE	1.69 UJ	0.74 UJ	0.72 UJ	1.72 UJ	2.08 UJ	0.71 UJ	0.71 UJ	0.63 J	0.71 U	0.44 U	0.45 U	0.71 UJ
N-methylperfluorooctane sulfonamidoacetic acid (NMeFOSAA)	NE	1.64 UJ	1.85 UJ	1.81 UJ	1.08 UJ	0.42 J	1.79 UJ	1.79 UJ	0.72 J	1.79 UJ	1.11 U	1.13 U	1.79 UJ
Perfluorobutanesulfonic acid (PFBS)	380,000	0.37 UJ	0.37 UJ	0.36 UJ	0.36 UJ	0.36 UJ	0.36 UJ	0.36 UJ	0.38 U	0.36 U	0.22 U	0.23 U	0.36 U
Perfluorodecanoic acid (PFDA)	NE	1.1 UJ	0.37 UJ	0.36 UJ	1.03 UJ	0.69 UJ	0.36 UJ	0.36 UJ	0.94 J	0.49 J	0.44 J	0.39 J	0.36 U
Perfluoroheptanoic acid (PFHpA)	NE	1.8 UJ	0.97 UJ	0.99 UJ	4.37 J	3 J	0.36 UJ	0.36 UJ	0.38 U	1.54 J	3.29 J	2.36 J	0.36 U
Perfluorohexanesulfonic acid (PFHxS)	NE	3.18 UJ	1.2 UJ	1.22 UJ	4.49 UJ	3.47 UJ	0.36 UJ	0.36 UJ	4.4 J	8.97	0.22 U	0.23 U	0.36 U
Perfluorononanoic acid (PFNA)	NE	1.39 UJ	0.74 UJ	0.72 UJ	1.57 UJ	1.12 UJ	0.71 UJ	0.71 UJ	1.93 J	0.38 J	0.63 J	0.52 J	0.71 U
Perfluorooctanoic acid (PFOA)	70	6.58 UJ	4.2 UJ	3.78 UJ	13.6 J	14.56 J	1.58 UJ	1.74 UJ	11.26	6.59 J	6.27 U	6.27 U	3.29 J
Perfluorotetradecanoic acid (PFTeDA)	NE	4.24 UJ	1.86 UJ	1.08 UJ	4 UJ	0.71 UJ	0.71 UJ	0.71 UJ	2.56 J	0.36 J	0.44 U	0.55 U	0.71 UJ
Perfluorotridecanoic acid (PFTrDA)	NE	2.11 UJ	0.37 UJ	0.59 UJ	1.98 UJ	0.36 UJ	0.36 UJ	0.36 UJ	1.49 J	0.22 J	0.22 U	0.34 J	0.36 UJ
Perfluoroundecanoic acid (PFUnA)	NE	1.28 UJ	0.74 UJ	0.72 UJ	1.36 UJ	0.71 UJ	0.71 UJ	0.71 UJ	0.69 J	0.71 U	0.44 U	0.45 U	0.71 UJ
Perfluorododecanoic acid (PFDoA)	NE	2.14 UJ	0.37 UJ	0.36 UJ	2.08 UJ	0.36 UJ	0..36 UJ	0.36 UJ	1.03 J	0.36 U	0.22 U	0.12 J	0.36 U
Perfluorohexanoic acid (PFHxA)	NE	2.19 UJ	1.71 UJ	1.82 UJ	6.39 J	3.99 J	0.36 UJ	0.36 UJ	0.38 UJ	1.8 J	3.5 J	1.57 J	0.36 UJ

Notes:

PFAS compounds analyzed by EPA Method 537-MOD.

Bold text indicates that the result or the LOD exceeds the PAL.

FD - Field Duplicate

P – Parent sample of field duplicate.

N – Sample is not part of a field duplicate pair

J - The reported value is an estimated concentration.

NE - Not established.

PAL - Project action limit as established in the sampling and analysis plan.

U - The analyte was not detected at or above the stated limit. (sometimes validators will elevate the limit due to the "B" qualifier using the 5x/10x rule so this definition is different than the lab description).

UJ - The analyte was not detected at the stated sample quantitation limit, which is an estimated value.

ng/L - nanograms per liter

APPENDIX E
OU 2 AREA 2 CUMULATIVE LONG-TERM MONITORING DATA

Table E-1. Target Analytes in Groundwater at OU 2 Area 2 (November 1995 – June 2019)

Location	Sampling Date	cis,1,2-DCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
Remedial Goal (Drinking Water)[a]		**16[e]**	**5[f]**	**0.029[g]**
2MW-1	11/21/95	1 U	**41 J**	1 U *
	09/30/96	1 U	**28**	1 U *
	10/16/97	1 U	**29**	1 U *
	10/08/98	0.2 U	**29**	0.2 U *
	11/22/99	0.5 U	**17**	0.5 U *
	11/17/00	0.5 U	**22**	0.5 UJ *
	11/19/01	0.1 U	**16**	0.2 U *
	06/17/02	0.1 U	**11**	0.2 U *
	06/18/03	0.067 U	**12**	0.12 U *
	06/15/04	0.067 U	**9.7**	0.12 U *
	06/21/05	0.2 U	**10**	0.2 U *
	06/20/06	0.5 U	**8.1**	0.2 U *
	06/12/07	0.5 U	**5.8**	0.2 U *
	05/06/08	0.5 U	4.9	0.2 U *
	06/24/09	0.21 J	**5.8 J**	0.2 U *
	06/15/10	NS	NS	NS
	07/20/11	0.08 J	3.8	0.2 U *
	06/13/12	0.059	3.8	0.010 J
	06/24/14	0.089	1.2	0.018 J
	06/21/16	NA	NA	0.022 U
	09/20/18	NA	NA	0.021 J
	06/24/19	NA	NA	0.020 U
2MW-3	11/20/95	**19**	1 J	**4**
2MW-4	11/20/95	1 U	1 U	1 U *
2MW-5	11/21/95	7	**11**	**1**
	09/30/96	1	2	**1**
	10/16/97	1	2	**1**
	10/08/98	0.26	2.1	**0.2**
	11/22/99	0.5	0.4 J	**0.5**
2MW-6[b]	11/20/95	10	1 U	**4**
	09/30/96	15	1 U	**5**
	10/16/97	11	1 U	**4**
	10/08/98	9.5	0.2 U	**2.7**
	11/22/99	12	0.5 U	**2.7**
	11/17/00	15	0.5 U	**2.9 J**
	11/19/01	7 J	0.2 UJ	**1.2 J**
	06/17/02	13	0.2 U	**2.1**
	06/18/03	9.9	0.081 U	**1.5**
	06/15/04	6.9	0.081 U	**0.86**
	06/21/05	4.5	0.2 U	**0.68**
	06/21/06	9	0.5 U	**1.1**
	06/13/07	8.4	0.5 U	**0.99**
	05/07/08	2.7	0.5 U	**0.34**
	06/24/09	7.1	0.03 J	**0.99**
	06/15/10	3.5	0.5 U	**0.32**
	07/20/11	1.5	0.5 U	**0.09 J**
	06/13/12	1.7	0.018 J	**0.099**

Table E-1 (continued). Target Analytes in Groundwater at OU 2 Area 2 (November 1995 – June 2019)

Location	Sampling Date	cis,1,2-DCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)
Remedial Goal (Drinking Water)[a]		**16[e]**	**5[f]**	**0.029[g]**
	06/23/14	3.9	0.021 UJ	**0.220**
	06/21/16	NA	NA	**0.073**
	09/20/18	NA	NA	**1.4**
	06/24/19	NA	NA	**0.16 M**
MW2-6[c]	11/17/00	0.5 U	0.5 U	0.5 U *
MW2-8[d]	11/19/01	0.72	0.2 U	0.2 U *
	06/17/02	0.97	0.2 U	0.2 U *
	06/18/03	1.4	0.081 U	0.12 U *
	06/15/04	1.9	0.081 U	**0.2 J**
	06/24/05	1.9	0.2 U	0.2 U *
	06/20/06	2	0.5 U	0.2 U *
	06/12/07	1.9	0.5 U	**0.2**
	05/06/08	1.4	0.5 U	**0.07 J**
	06/24/09	1.1	0.5 U	**0.07 J**
	06/15/10	1.1	0.5 U	0.2 UJ *
	07/20/11	1.2	0.5 U	0.2 U *
	06/13/12	0.92 J	0.0045 J	**0.035**
	06/23/14	0.43	0.02 U	0.016 J
	06/21/16	NA	NA	0.020 U
	09/20/18	NA	NA	**0.049 J**
	06/24/19	NA	NA	0.020 U

[a] Protection of human health by ingestion.
[b] The 11/17/00 and 11/19/01 results for 2MW-6 are the average concentrations of the primary and duplicate sample.
[c] Prior to 2000, MW2-6 was last sampled in 1991 during the remedial investigation.
[d] The 06/17/02 results for MW2-8 are the average concentrations of the primary and duplicate sample.
[e] No remedial goal for cis-1,2-DCE was established in the Record of Decision (U.S. Navy, USEPA, Ecology, 1994). For comparison purposes, the current MTCA Method B value is shown in the table.
[f] Value listed accounts for adjustment when the maximum contaminant level or water quality standard is sufficiently protective to serve as the MTCA cleanup level for that individual chemical. Individual chemical cleanup levels may require downward adjustment for multiple chemical contaminants or multiple exposure pathways (WAC 173-340-720[7][b]). Value does not account for adjustments due to background levels or PQLs.
[g] Calculated MTCA Method B remedial goal starting in 2012, based upon the current oral slope value.

Notes:
Bolded value indicates it exceeds or is equal to the remedial goal for drinking water.
Yellow highlighted rows indicate sampling results from this FYR period.
* – The reporting limit exceeds the remedial goal
DCE – dichloroethane
J – The result is an estimated concentration that is less than the MRL, but greater than or equal to the MDL.
M – Laboratory performed a manual integration on the chromatographic peak.
MDL – method detection limit
µg/L – microgram per liter
MRL – method reporting limit
MTCA – Model Toxics Control Act
NA – Compound not analyzed for per recommendation in the fourth FYR.
NS – not sampled
PQL – practical quantitation limits
TCE – trichloroethene
U – The compound was analyzed for but was not detected (“nondetect”) at or above the MRL/MDL.

Table E-2. 1,4-Dioxane in Groundwater at OU 2 Area 2 (June 2007 – June 2019)

Location	Sampling Date	1,4-Dioxane (µg/L)
MTCA Method B Cleanup Level		**0.44**[a]
2MW-1	06/12/07	1.0 U
	06/20/17	0.40 U
	09/20/18	0.40 U
	06/24/19	0.19 U
2MW-6	06/13/07	0.30 J
	06/20/17	0.40 U
	09/19/18	0.17 J
	06/24/19	0.19 U
MW2-8	06/12/07	1.0 U
	06/20/17	0.40 U
	09/20/18	0.40 U
	06/24/19	0.19 U

[a] No remedial goal for 1,4-dioxane was established in the Record of Decision (U.S. Navy, USEPA, Ecology, 1994). For comparison purposes, the MTCA Method B (carcinogenic) cleanup level is provided in the table.

Notes:
Bold indicates detected value is equal to or exceeds the MTCA Method B cleanup level.
J – estimated concentration
U – not detected at or above the practical quantitation limit shown
µg/L – micrograms per liter

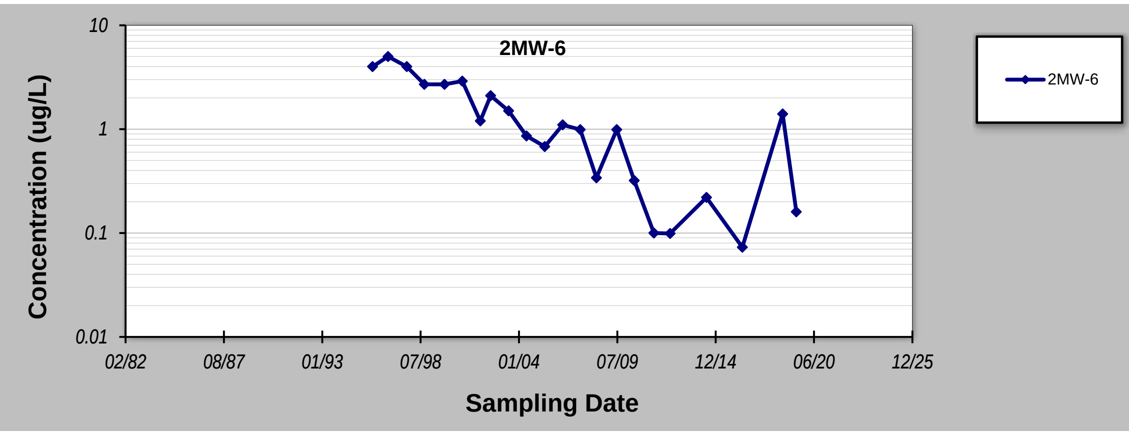
APPENDIX F
OU 2 AREA 2 MANN-KENDALL STATISTICS AT 2MW-6

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **17-Feb-20**
Facility Name: **NBK Keyport, OU 2 Area 2**
Conducted By: **Angela Paolucci/Battelle**

Job ID: **F4125**
Constituent: **Vinyl Chloride**
Concentration Units: **ug/L**

Sampling Event	Sampling Date	2MW-6						
		VINYL CHLORIDE CONCENTRATION (ug/L)						
1	20-Nov-95	4						
2	30-Sep-96	5						
3	16-Oct-97	4						
4	8-Oct-98	2.7						
5	22-Nov-99	2.7						
6	17-Nov-00	2.9						
7	19-Nov-01	1.2						
8	17-Jun-02	2.1						
9	18-Jun-03	1.5						
10	15-Jun-04	0.86						
11	21-Jun-05	0.68						
12	21-Jun-06	1.1						
13	13-Jun-07	0.99						
14	7-May-08	0.34						
15	24-Jun-09	0.99						
16	15-Jun-10	0.32						
17	20-Jul-11	0.1						
18	13-Jun-12	0.099						
19	23-Jun-14	0.22						
20	21-Jun-16	0.073						
21	19-Sep-18	1.4						
22	24-Jun-19	0.16						
23								
24								
25								
Coefficient of Variation:		0.95						
Mann-Kendall Statistic (S):		-170						
Confidence Factor:		>99.9%						
Concentration Trend:		Decreasing						



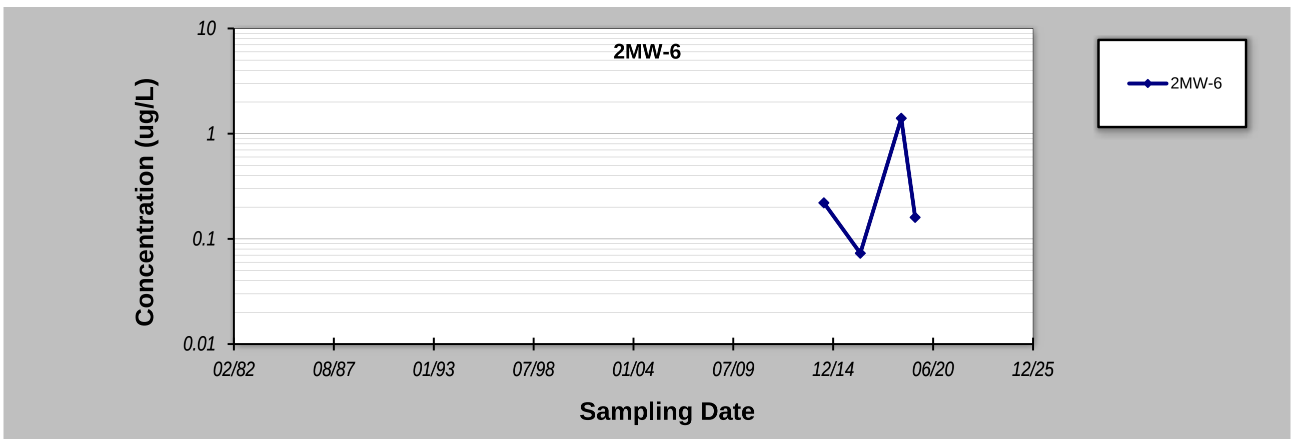
Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	17-Feb-20		Job ID:	F4125
Facility Name:	NBK Keyport, OU 2 Area 2		Constituent:	Vinyl Chloride
Conducted By:	Angela Paolucci/Battelle		Concentration Units:	ug/L

Sampling Event	Sampling Date	VINYL CHLORIDE CONCENTRATION (ug/L)						
Sampling Point ID:		2MW-6						
1	23-Jun-14	0.22						
2	21-Jun-16	0.073						
3	19-Sep-18	1.4						
4	24-Jun-19	0.16						
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		1.35						
Mann-Kendall Statistic (S):		0						
Confidence Factor:		37.5%						
Concentration Trend:		No Trend						



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water*, 41(3):355-367, 2003.

APPENDIX G
OU 2 AREA 8 CUMULATIVE LONG-TERM MONITORING DATA

Table G-1. Summary of Selected VOCs Detected in Groundwater and Seeps at OU 2 Area 8 (1995-2019)

Location	Sampling Date	Analyte Concentration (µg/L)				
		1,1-DCE	cis-1,2-DCE	PCE	1,1,1-TCA	TCE
RG (Drinking Water)[a]		**7[b]**	**70**	**5[b]**	**200**	**5[b]**
RG (Surface Water)[a]		**3.2[b,c]**	**--**	**8.9[b,c]**	**42,000**	**81[b,c]**
MW8-8	11/95	1.0	2.0	**49**	23	**190**
	06/96	0.90 J	1.0	**34**	11	**110**
	09/96	1.0	2.0	**58**	19	**190**
	05/97	1.0 U	1.0	**15**	3.0	**68**
	10/97	0.60 U	1.0 U	**19**	9.0	**78**
	05/98	1.0 U	0.9 J	**12**	3.0	**63**
	10/98	1.0 U	1.0 U	**30**	9.0	**76**
	05/99	5.0 U *	5.0 U	5.0 U	5.0 U	**58**
	11/99	1.0	3.2	2.0	10	**150 H**
	06/00	1 J	4.5	**23**	6.6	**120**
	06/01	1.3	7.3	**20**	3.9	**84**
	06/02	1.1	7.3	**17**	3.9	**81**
	06/03	0.94	6.8	**12**	2.7	**81 D**
	06/04	1.1	8.5	**13**	2.9	**80 D**
	06/05	0.7	7.4	**11**	2.0	**64**
	06/06	0.68	7.6	**9.2**	2.2	**68 D**
	06/07	0.55	7.5	**7.7**	1.7	**53 D**
	05/08	0.41 J	6.6	**8.4**	1.6	**59**
	06/09	0.69	9.1	**5.6**	1.6	**66**
	06/10	0.55	8.4	**5.1**	1.5	**58**
	07/11	0.37 J	5.9	**6.0**	1.5	**59**
	06/12	0.14 J	2.1	**9.7**	1.1	**38**
	06/13	0.5 U	0.46 J	**9.0**	0.6	**24 J**
	06/14	0.5 U	0.83	**9.8**	0.83	**32**
	06/15	0.5 U	0.45 J	**8.4**	0.87	**26**
	06/16	0.11 J	1.2	**6.9**	0.9	**37**
	06/17	0.11 J	1.6	**7.1**	0.93	**40**
	09/18	0.13 J	1.8	**8.0**	NA	**33 EJ**
	06/19	0.20 UM	1.1	**6.9**	1.1	**35**
MW8-9	11/95	50 U *	27 J	50 U *	50 U	**1600**
	06/96	1.0 U	28	1 U	2.0	**800**
	09/96	1.0 U	28	0.40 J	2.0	**1000**
	05/97	1.0 U	34	0.30 J	2.0	**1600**
	10/97	1.0 U	1.0 U	1.0 U	1.0	**720**
	05/98	1.0 U	12	1.0 U	0.70 J	**370**
	10/98	1.0 U	34	1.0 U	3.0	**610**
	05/99	1.0 U	6.0	1.0 U	1.0 U	**84**
	11/99	0.50 U	30	0.6	1.4	**500**
	06/00	2.5 U	15	2.5 U	1 J	**170**
	06/01	0.24 U	18	0.26 J	0.44 J	**330**
	06/02	0.50 U	7.5	0.23 J	0.69	**60**
	06/03	0.50 U	1.3 U	0.50 U	0.23 J	**21**
	06/04	0.50 U	1.7	0.18 J	0.44 J	**25**
	06/05	0.2 U	0.2	0.2 U	0.2 U	4.1
	06/06	0.50 U	0.42 J	0.20 J	0.28 J	3.9
	06/07	0.5 U	0.27 J	0.5 U	0.15 J	1.9
	05/08	0.5 U	0.23 J	0.16 J	0.14 J	1.7
	06/09	0.2 U	1.3	0.18 J	0.14 J	**20**
	06/10	0.5 U	0.69	0.11 J	0.12 J	**9.4**
	07/11	0.5 U	0.8	0.12 J	0.11 J	**12**
	06/12	0.5 UJ	1.2	0.49 J	0.16 J	**14**
	06/13	0.5 U	2.7	0.18 J	0.13 J	**43 J**
	06/14	0.5 U	1.5	0.29 J	0.12 J	**24**
	06/15	0.5 U	0.35 J	0.16 J	0.13 J	**5.6**
	06/16	0.5 U	0.07 J	0.10 J	0.15 J	0.27 J
	06/17	0.5 U	0.5 U	0.13 J	0.50 U	0.12 J
	09/18	0.02 UJ	0.02 U	0.13	NA	0.059
	06/19	0.2 U	0.2 UM	0.10 J	0.090 J	0.20 U
MW8-10	06/00	0.54	1.8	1.2	4.2	**22**
	06/02	0.24 J	2.4	0.84	0.74	**31**

Table G-1. Summary of Selected VOCs Detected in Groundwater and Seeps at OU 2 Area 8 (1995-2019)

Location	Sampling Date	Analyte Concentration (µg/L)				
		1,1-DCE	cis-1,2-DCE	PCE	1,1,1-TCA	TCE
RG (Drinking Water)[a]		7[b]	70	5[b]	200	5[b]
RG (Surface Water)[a]		3.2[b,c]	--	8.9[b,c]	42,000	81[b,c]
MW8-11	11/95	**44**	1.0 U	1.0 U	**520**	**84**
	06/96	**47**	1.0 U	1.0 U	**460**	**84**
	09/96	**27**	0.30 J	1.0 U	**420**	**80**
	05/97	**42**	1.0 U	1.0 U	**500**	**63**
	10/97	**30**	2.0	1.0 U	**300**	**62**
	05/98	**33**	1.0 U	1.0 U	**200**	**61**
	10/98	**35**	1.0 U	1.0 U	**220**	**62**
	05/99	**8.0**	2.0 U	2.0 U	45	**27**
	11/99	**12**	0.50 U	0.50 U	64 H	**54 H**
	06/00	**12**	0.40 J	0.50 U	82 J	**41 J**
	06/01	**15**	0.38 J	0.27 J	91	**62**
	06/02	1.1	0.46 J	0.79	84	**92**
	06/03	**20**	0.47 J	0.6	80 D	**99 D**
	06/04	**25**	0.37 J	0.66	80	**110 D**
	06/05	**10**	0.2	0.5	33	**61**
	06/06	**10**	0.27 J	0.68	39	**99 D**
	06/07	3.3	0.29 J	0.81	21	**46 D**
	05/08	2.4	0.37 J	1.1	31	**53**
	06/09	1.6	0.38 J	1.2	22	**67**
	06/10	1.6	0.83	1.5	14	**80 J**
	07/11	0.35 J	0.82	0.79	10	**75**
	06/12	0.77 J	0.81	1.1	9.7	**56**
	06/13	0.56	0.61	1.0	6.9	**67**
	06/14	0.21 J	0.45 J	0.9	5.0	**55**
	06/15	0.2 J	0.55	0.77	6.3	**63**
	06/16	0.1 J	0.38 J	0.5	4.2	**45**
	06/17	0.5 U	0.26 J	0.44 J	3.0	**24**
	09/18	0.049 J	0.25	0.41	NA	**24 EJ**
	06/19	0.2 U	0.17 J	0.31 J	3.3	**16**
MW8-12	11/95	**10**	1.0	**13**	140	**85**
	06/96	**14**	1.0 U	**5.0**	180	**63**
	09/96	**20**	2.0	**23**	**250**	**120**
	05/97	6.0	1.0	**12**	67	**120**
	10/97	4.0	1.0 U	**7.0**	41	**44**
	05/98	2.0	2.0	**10**	20	**46**
	10/98	1.0 U	1.0 U	**15**	22	**46**
	05/99	1.0 U	1.0 U	4.0 U	8.0	**25**
	11/99	0.9	2.1	**9.7**	14	**50 H**
	06/00	0.50 J	3.0	**16**	6.8	**54**
	06/01	0.67	4.8	**14**	6.5	**76**
	06/02	0.50 U	4.5	**14**	5.0	**47**
	06/03	0.31 J	3.2	**9.8**	3.2	**36**
	06/04	0.34 J	3.1	**8.5**	4.1	**40**
	06/05	0.3	3.3	**8.8**	2.8	**34**
	06/06	0.28 J	2.5	**7.9**	2.5	**31**
	06/07	0.22 J	3.5	**6.8**	2.0	**37**
	05/08	0.15 J	2.4	**7.7**	1.8	**28**
	06/09	0.18 J	3.4	**11**	2.5	**52**
	06/10	0.2 J	3.9	**6.2**	1.5	**31**
	07/11	0.11 J	3.0	**6.0**	2.1	**31**
	06/12	0.5 UJ	1.8	**6.3**	1.6	**31**
	06/13	0.5 U	0.5	**5.6**	1.2	**23**
	06/14	0.5 U	0.39 J	**5.7**	1.1	**22**
	06/15	0.5 U	0.26 J	4.6	1.7	**17**
	06/16	0.5 U	0.19 J	2.9	1.2	**11**
	06/17	0.5 U	0.28 J	2.8	0.87	**10**
	09/18	0.043 J	0.38	4.1	NA	**16 EJ**
	06/19	0.2 U	0.15 JM	2.3	1.3	**11**

Table G-1. Summary of Selected VOCs Detected in Groundwater and Seeps at OU 2 Area 8 (1995-2019)

Location	Sampling Date	Analyte Concentration (µg/L)				
		1,1-DCE	cis-1,2-DCE	PCE	1,1,1-TCA	TCE
RG (Drinking Water)[a]		**7[b]**	**70**	**5[b]**	**200**	**5[b]**
RG (Surface Water)[a]		**3.2[b,c]**	**--**	**8.9[b,c]**	**42,000**	**81[b,c]**
MW8-14	11/95	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	06/96	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	09/96	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	05/97	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	10/97	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	05/98	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	10/98	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	05/99	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/99	0.50 U	3.2	0.50 U	0.50 U	0.50 U
	06/00	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	06/01	0.12 U	0.12 U	0.11 U	0.84	0.12 U
	06/02	0.50 U	0.50 U	0.50 U	0.18 J	0.50 U
	06/03	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
	06/04	0.50 U	0.50 U	0.50 U	0.12 J	0.50 U
	06/05	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
	06/06	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	06/07	0.5 U	0.5 U	0.5 U	0.5 U	0.23 J
	05/08	0.5 U	0.5 U	0.5 U	0.11 J	0.5 U
	06/09	0.2 U	0.5 U	0.5 U	0.1 J	0.5 U
	06/10	0.5 U	0.5 U	0.5 U	0.18 J	0.5 U
	07/11	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	06/12	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
	06/13	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
	06/14	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	06/15	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	06/16	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	06/17	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
	09/18	0.02 UJ	0.027	0.014 J	NA	0.031
	06/19	0.2 U	0.2 UM	0.5 U	0.2 U	0.2 U
MW8-15	06/19	0.2 U	0.2 U	0.5 U	0.2 U	0.2 U
MW8-16	11/95	1.0 U	2.0	0.60 J	2.0	**58**
	06/96	1.0 U	2.0	0.80 J	2.0	**72**
	09/96	1.0 U	3.0	0.80 J	2.0	**69**
	05/97	1.0 U	2.0	0.80 J	2.0	**57**
	10/97	1.0 U	1.0 U	0.60 J	2.0	**47**
	05/98	1.0 U	2.0	0.80 J	1.0	**61**
	10/98	1.0 U	3.0	1.0 U	1.0 U	**47**
	05/99	1.0 U	6.0	1.0 U	2.0	**40**
	11/99	0.50 U	5.3	0.8	1.7	**63**
	06/00	0.59	16	0.7	1.1	**51**
	06/01	0.77	21	0.84	1.2	**74**
	06/02	0.67	30 U	0.99	0.83	**130**
	06/03	0.57	28	1.5	0.94	**190 D**
	06/04	0.61	**130 D**	0.75	0.59 J	**120 D**
	06/05	0.9	34	2.2	0.7	**350**
	06/06	0.64	**93 D**	1.1	0.33 J	**200 D**
	06/07	0.68	38	1.5	0.42 J	**430 D**
	05/08	0.65	67 D	1.0	0.18 J	**380 D**
	06/09	0.21	14	0.64	0.13 J	**140 D**
	06/10	0.13 J	9.2	0.64	0.16 J	**79 J**
	07/11	0.1 J	3.6	0.76	0.22 J	**90**
	06/12	0.08	2.7	0.8	0.18 J	**56**
	06/13	0.5 U	0.93	0.79	0.21 J	**50**
	06/14	0.5 U	1.0	0.97	0.19 J	**50**
	06/15	0.09 J	1.8	0.51	0.19 J	**48**
	06/16	0.11 J	28	0.5 U	0.5 U	**8.1**
	06/17	0.09 J	26	0.15 J	0.5 U	**7.2**
	09/18	0.088 J	23 EJ	0.064	NA	4.4
	06/19	0.1 JM	23	0.5 U	0.074 JM	4.6

Table G-1. Summary of Selected VOCs Detected in Groundwater and Seeps at OU 2 Area 8 (1995-2019)

		Analyte Concentration (µg/L)				
Location	Sampling Date	1,1-DCE	cis-1,2-DCE	PCE	1,1,1-TCA	TCE
RG (Drinking Water)[a]		7[b]	70	5[b]	200	5[b]
RG (Surface Water)[a]		3.2[b,c]	--	8.9[b,c]	42,000	81[b,c]
Seep A	05/96	**16**	7.0	3.0	88	68
	06/00	3.1	3.7	0.30 J	19	7.4
	06/01	1.4	1.3	0.31 J	11	3.0
	06/02	1.0	0.68	0.50 U	9.5	1.2
	06/03	0.50 U	0.50 U	0.24 J	1.6	0.36 J
	06/04	**13**	9.9	0.92	77	49
	06/05	0.2 U	0.2 U	0.3	2.2	0.3
	06/06	1.5 J	2.0 J	0.3 J	12 J	3.6 J
	06/07	0.42	0.85	0.31 J	2.8	2.4
	05/08	1.1	1.7	0.55	5.5	7.7
	06/09	1.5	1.9	0.39 J	5.7	6.4
	06/10	0.36 J	1.6	0.29 J	1.8	4.4
	07/11	0.5 U	0.09 J	0.1 J	0.5 U	1.4
	06/12	**11 J**	1.9	1.0	53 J	13
	06/13	0.5 U	1.3	0.26 J	1.0	3.3 J
	06/14	2.9	1.0	0.73	21	7.4
	06/15	0.25 J	1.3	0.3 J	3.6	2.5
	06/16	5.4	0.82	0.65	44 J	7.9
	06/17	2.6	0.69	0.58	18	6.7
Seep B	05/96	1.0 U	0.70 J	1.0 U	1.0	14
	06/00	0.50 U	0.50 U	0.50 U	0.30 J	2.2
	06/01	0.12 U	0.44 J	0.13 J	0.26 J	3.1
	06/02	0.50 U	0.52	0.12 J	0.15 J	5.4
	06/03	0.50 U	0.20 J	0.14 J	0.50 U	1.9
	06/04	0.50 U	0.23 J	0.39 J	0.8	0.61
	06/05	0.2 U	0.2 U	0.4	0.3	0.3
	06/06	0.5 U	0.18 J	0.22 J	0.12 J	0.48 J
	06/07	0.5 U	0.5 U	0.5 U	0.5 U	0.14 J
	05/08	0.5 U	0.12 J	0.17 J	0.1 J	0.41 J
	06/09	0.2 U	0.5 U	0.18 J	0.16 J	0.4 J
	06/10	0.5 U	0.51	0.18 J	0.09 J	5.7
	07/11	0.5 U	0.09 J	0.12 J	0.5 U	1.3
Seep C	09/18	1.0 UJ	0.0078 J	0.14 J	NA	0.06 J
	06/19	0.2 UJ M	0.055 J	0.17 J	0.71	0.26

[a]Protection of human health for ingestion
[b]Value listed accounts for adjustment when the maximum contaminant level or water quality standard is sufficiently protective to serve as the RG for that individual chemical. Individual cleanup levels may require downward adjustment for multiple chemical contaminants or multiple exposure pathways. Value does not account for adjustments due to background levels or practical laboratory quantitation limits.
[c]Protection of human health for fish ingestion

Notes:
Bolded value indicates concentration in the monitoring well exceeds or is equal to the RG for drinking water, or in the seep exceeds or is equal to the RG for surface water.
Shaded row indicates data evaluated in this review period.
Yellow highlighted value exceeds or is equal to the surface water RG.
* - The reporting limit exceeds the RG
Data from 1995 to 2004 are from U.S. Navy 2005a, from 2005 to 2008 are from U.S. Navy 2008c, from 2009 are from U.S. Navy 2009d, and from 2010 through 2014 in U.S. Navy 2015c.
D - The reported result is from a dilution.
DCE - dichloroethene
H - Analytical result is from an analysis reported past the holding time.
J - The result is an estimated concentration that is less than the MRL, but greater than or equal to the MDL.
MDL - method detection limit
µg/L - microgram per liter
MRL - method reporting limit
PCE - tetrachloroethene
RG - remediation goal
TCA - trichloroethane
TCE - trichloroethene
U - The compound was analyzed for, but was not detected ("nondetect") at or above the MRL/MDL.

Table G-2. Summary of Other VOCs Detected in Groundwater at OU 2 Area 8 (2015-2019)

Location ID	Sampling Date	Chloroform (µg/L)	CT (µg/L)	1,1-DCA (µg/L)	1,2-DCA (µg/L)	trans-1,2-DCE (µg/L)	1,1,2-TCA (µg/L)	Toluene (µg/L)	Total Xylenes (µg/L)
Drinking Water Remediation Goals		**7.2**	**0.34**	**800**	**5**	**100**	**5**	**1,000**	**10,000**
Surface Water Remediation Goals		**470**	**4.4**	**NE**	**5.9**	**33,000**	**42**	**49,000**	**NE**
MW8-8	06-15	1.4		0.5 U		1.5		0.46 J	0.5 U
MW8-8	06-16	1.9		0.5 U		2.2		0.5 U	0.5 U
MW8-8	06-17	0.62		0.5 U		3.0	0.019 J	0.5 U	0.5 U
MW8-8	09-18	0.54 J	0.26 J	0.5 U	0.006 J	1.8	0.23		
MW8-8	06-19	0.58	0.2 U	0.063 JM	0.2 U	1.9	0.2 UM		
MW8-9	06-15	0.16 J		0.5 U		0.12 J		0.77	0.11 J
MW8-9	06-16	0.5 U		0.5 U		0.5 U		0.17 J	0.5 U
MW8-9	06-17	0.5 U		0.5 U		0.5 U		0.5 U	0.5 U
MW8-9	09-18	0.024 J	0.046 J		0.02 J	0.02 U	0.02 U		
MW8-9	06-19	0.2 UM	0.2 U	0.2 UM	0.2 U	0.2 U	0.2 U		
MW8-11	06-15	0.48 J		0.12 J		0.56		1.1	0.5 U
MW8-11	06-16	0.5 U		0.9 J		0.26 J		0.12 J	0.5 U
MW8-11	06-17	0.23 J		0.1 J		0.11 J		0.5 U	0.5 U
MW8-11	09-18	0.26 J	**0.86 J**		0.019 J	0.14	0.033		
MW8-11	06-19	0.18 J	0.2 U	0.08 J	0.2 U	0.2 U	0.2 U		
MW8-11 (Dup)	06-16	0.5 U		0.11 J		0.26 J		0.1 J	0.5 U
MW8-11 (Dup)	06-17	0.23 J		0.1 J		0.14 J		0.5 U	0.5 U
MW8-11 (Dup)	09-18	0.26 J	**0.86 J**		0.019 J	0.14	0.032		
MW8-11 (Dup)	06-19	0.18 J	0.2 U	0.084 J	0.2 U	0.2 U	0.2 U		
MW8-12	06-15	3.0		0.5 U		1.2		0.5 U	0.13 J
MW8-12	06-16	1.1		0.5 U		0.75		0.1 J	0.5 U
MW8-12	06-17	0.74		0.5 U		0.78		0.5 U	0.5 U
MW8-12	09-18	0.79 J	**0.46 J**		0.006 J	0.89	0.13		
MW8-12	06-19	0.31	0.2 U	0.2 UM	0.2 U	0.37 M	0.2 U		
MW8-14	06-15	0.5 U		0.5 U		0.5 U		0.5 U	0.5 U
MW8-14	06-16	0.5 U		0.5 U		0.5 U		0.5 U	0.5 U
MW8-14	06-17	0.5 U		0.5 U		0.5 U		0.5 U	0.5 U
MW8-14	09-18	0.009 J	0.02 UJ		0.02 U	0.02 U	0.02 U		
MW8-14	06-19	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		
MW8-15	06-19	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U		
MW8-16	06-15	1.8		0.5 U		0.5 U		0.49 J	0.12 J
MW8-16	06-16	0.5 U		0.5 U		0.13 J		0.5 U	0.5 U
MW8-16	06-17	0.14 J		0.08 J		0.19 J		0.5 U	0.5 U
MW8-16	09-18	0.84 J	0.029 J		0.02 U	0.25	0.02 U		
MW8-16	06-19	0.11 JM	0.2 U	0.081 JM	0.2 U	0.25	0.2 U		

Notes:

Bold indicates detected value is equal to or exceeds the drinking water RG.

µg/L – microgram per liter

CT – carbon tetrachloride

DCA – dichloroethane

DCE – dichloroethene

Dup – field duplicate

ID – identification

J – analyte positively identified, but result is estimated

M – manual integrated compound

TCA – trichloroethane

U – analyte was not detected at or above the indicated practical quantitation limit

VOC – volatile organic compounds

Table G-3. Summary of 1,4-Dioxane Results in Groundwater and Seeps at OU 2 Area 8 (2007-2019)

Location	Sampling Date	1,4-Dioxane (µg/L)
MW8-8	06/07	**0.70 J**
	07/11	1.0 U *
	06/12	**0.76 J**
	06/13	1.0 U *
	06/14	1.0 U *
	06/15	0.22 J
	06/16	0.41
	06/17	**1.1**
	09/18	0.43
	06/19	**0.47**
MW8-9	06/07	1.0 U *
	07/11	1.0 U *
	06/12	1.0 U *
	06/13	1.0 U *
	06/14	1.0 U *
	06/15	0.40 U
	06/16	0.25 J
	06/17	0.40 U
	09/18	0.40 U
	06/19	0.19 U
MW8-11	06/07	**39**
	07/11	**29**
	06/12	**19**
	06/13	**11**
	06/14	**11**
	06/15	**12**
	06/16	**14**
	06/17	**16**
	09/18	**8.1**
	06/19	**8.7**
MW8-12	06/07	**1.1**
	07/11	0.18 J
	06/12	**0.53 J**
	06/13	1.0 U *
	06/14	0.31 J
	06/15	**0.53**
	06/16	**1.1**
	06/17	**1.1**
	09/18	**0.96**
	06/19	**0.44**

Table G-3. Summary of 1,4-Dioxane Results in Groundwater and Seeps at OU 2 Area 8 (2007-2019)

Location	Sampling Date	1,4-Dioxane (µg/L)
MW8-14	06/07	1.0 U *
	07/11	1.0 U *
	06/12	1.0 J
	06/13	1.0 U *
	06/14	1.0 U *
	06/15	0.40 U
	06/16	0.16 J
	06/17	0.40 U
	09/18	0.40 U
	06/19	0.19 U
MW8-15	06/19	0.19 U
MW8-16	06/07	1.0 U *
	07/11	1.0 U *
	06/12	1.0 U *
	06/13	1.0 U *
	06/14	1.0 U *
	06/15	0.40 U
	06/16	0.22 J
	06/17	0.40 U
	09/18	0.40 U
	06/19	0.19 U
Seep A	07/11	1.0 U *
Seep B	07/11	1.0 U *

Notes:
No remediation goal is established for 1,4-dioxane.
Bold value is equal to or exceeds the Model Toxics Control Act Method B cleanup level (0.44 µg/L).
Data are from U.S. Navy 2015c.
* - Reporting limit exceeds the MTCA Method B cleanup level.
J - The result is an estimated concentration that is less than the MRL, but greater than or equal to the MDL.
MDL - method detection limit
µg/L - microgram per liter
MRL - method reporting limit
U - The compound was analyzed for, but was not detected ("nondetect") at or above the MRL/MDL.

Table G-4. Summary of Inorganics Detected in Groundwater and Seeps at OU 2 Area 8 Exceeding One-Half of the MTCA Method B Cleanup Levels (1995-2019)

Location	Sampling Date	Analyte Concentration (µg/L)																							
		Arsenic				Cadmium		Total Chromium		Chromium VI		Copper		Lead		Mercury		Nickel		Silver		Thallium		Zinc	
		Total	Total (ICP)	Dissolved	Dissolved (ICP)	Total	Dissolved	Total	Dissolved[b]	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
RG Drinking Water		0.05[e]				5		50[c]		80		590		15		2		100		48		1.1		4,800	
RG Surface Water		0.14[a,e]				8		50[d]		50		2.5		5.8		0.025		7.9		1.2		1.6		77	
MW8-6	06/96	NA	NA	NA	**1.1 B**	NA	(-)	NA	NA	(-)	NA	NA	(-)	NA	NA	NA	NA	NA	(-)	NA	NA	NA	(-)	NA	54.8
MW8-7	11/95	**3.3 +**	NA	NA	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	(-)	NA	0.11	NA	(-)	NA	(-)	NA	NS	**2.4 +**	(-)	NA
MW8-8	11/95	(-)	NA	NA	NA	(-)	NA	NA	NA	**390**	NA	4.8 +	NA	(-)	NA	(-)	NA	12.8 +	NA	(-)	NA	(-)	NA	(-)	NA
MW8-8	05/96	NA	NA	NA	**1.4 B**	NA	(-)	NA	NA	**380**	NA	NA	(-)	NA	NA	NA	NA	NA	(-)	NA	NA	NA	**1.2 BN**	NA	(-)
MW8-8	09/96	NA	NA	(-)	NA	NA	(-)	**330**	NA	**320**	NA	NA	(-)	NA	NA	NA	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)
MW8-8	05/97	NA	NA	2.0 UN *	NA	NA	(-)	NA	**319**	NA	**350**	NA	2.0 U	NA	(-)	NA	0.20 U *	NA	5.0 U	NA	4.0 U *	NA	1.0 UN	NA	(-)
MW8-8	10/97	NA	NA	0.50 UN *	NA	NA	(-)	NA	**372**	NA	NA	NA	2.3 B	NA	(-)	NA	0.10 U *	NA	11.0 U *	NA	1.8 B	NA	1.8 UN *	NA	(-)
MW8-8	05/99	NA	NA	0.50 U *	NA	NA	(-)	NA	**344**	NA	NA	NA	(-)	NA	(-)	NA	0.10 U *	NA	4.0 U	NA	1.0 UN	NA	1.2 U *	NA	(-)
MW8-8	10/98	NA	NA	1.8 U *	NA	NA	(-)	NA	**322**	NA	NA	NA	(-)	NA	(-)	NA	0.10 U *	NA	(-)	NA	1.0 UN	NA	1.2 U *	NA	(-)
MW8-8	05/99	NA	NA	1.7 U *	NA	NA	(-)	NA	**184 N**	NA	NA	NA	(-)	NA	(-)	NA	0.10 U *	NA	3.5 BN	NA	2.2 U *	NA	1.0 UN	NA	(-)
MW8-8	11/99	NA	NA	5 U *	NA	NA	2.5	NA	**154**	NA	NA	NA	10 U *	NA	2 U	NA	0.2 U *	NA	20 U *	NA	10 U *	NA	5 U *	NA	10 U
MW8-8	06/00	NA	NA	**0.20 J**	NA	NA	1.33	NA	**95.7**	NA	**102 J**	NA	0.46 J	NA	0.03	NA	0.10 U *	NA	3.21 J	NA	0.907	NA	0.01 U	NA	3.1
MW8-8	06/01	NA	NA	0.3 UJ *	NA	NA	0.58	NA	**71.4**	NA	NS	NA	0.29 J	NA	0.04 U	0.0022	NA	NA	1.5	NA	0.62	NA	0.005 U	NA	2 U
MW8-8	06/02	NA	NA	**0.13 J**	NA	NA	0.83 J	NA	**191**	NA	NA	NA	0.40	NA	0.15 UJ	NA	0.10 U *	NA	1.45	NA	0.47 J	NA	0.006 J	NA	0.8
MW8-8	06/03	NA	NA	**0.43 J**	NA	NA	0.15	NA	**84.1 J**	NA	NA	NA	0.49	NA	0.04	NA	0.10 U *	NA	0.76 J	NA	0.17	NA	0.005 B	NA	0.7
MW8-8	06/04	NA	NA	**0.32 B**	NA	NA	0.2	NA	**111**	NA	NA	NA	0.45	NA	0.009 B	NA	0.04 U *	NA	0.79	NA	0.489	NA	0.003 U	NA	1.45
MW8-8	06/05	NA	NA	**0.44**	NA	NA	1.23	NA	**88.3**	NA	NA	NA	0.42	NA	0.1 U	NA	0.1 U *	NA	2.8	NA	0.265	NA	0.01 U	NA	0.99
MW8-8	06/06	NA	NA	**0.27 B**	NA	NA	0.334	NA	**88.6**	NA	NA	NA	0.369	NA	0.021 U	NA	0.2 U *	NA	0.61 J	NA	0.284	NA	0.02 U	NA	1.02
MW8-8	06/07	NA	NA	**0.26 J**	NA	NA	0.12	NA	**81.9**	NA	NA	NA	5.1	NA	0.24	NA	0.2 U *	NA	0.69	NA	0.19	NA	0.02 U	NA	1
MW8-8	05/08	NA	NA	**0.21 B**	NA	NA	0.124	NA	**96**	NA	NA	NA	0.496	NA	0.054 U	NA	0.2 U *	NA	1.08	NA	0.182	NA	0.005 B	NA	0.77
MW8-8	06/09	NA	NA	**0.21 J**	NA	NA	0.432	NA	43.8	NA	NA	NA	0.437	NA	0.020 U	NA	0.2 U *	NA	1.05	NA	0.746 J	NA	0.009 J	NA	1.43
MW8-8	06/10	NA	NA	**0.85**	NA	NA	0.114	NA	**55.6**	NA	NA	NA	0.77	NA	0.02 UJ	NA	0.02 J	NA	0.72	NA	0.292	NA	0.02 U	NA	0.87
MW8-8	07/11	NA	NA	**0.91**	NA	NA	0.036 UJ	NA	**118**	NA	NA	NA	0.55	NA	0.02 UJ	NA	0.2 U *	NA	0.4	NA	0.198	NA	0.02 U	NA	0.48 J
MW8-8	06/12	NA	NA	**0.7**	NA	NA	0.022	NA	**59.6**	NA	NA	NA	0.51	NA	0.107	NA	0.2 U *	NA	0.68	NA	0.2	NA	0.013 J	NA	0.5
MW8-8	06/13	NA	NA	**0.648**	NA	NA	0.008	NA	**52.3**	NA	NA	NA	0.33	NA	0.02 U	NA	0.2 U *	NA	0.34	NA	0.211	NA	0.02 U	NA	0.37 J
MW8-8	06/14	NA	NA	**0.56**	NA	NA	0.015 J	NA	**66.7**	NA	NA	NA	0.39 J	NA	0.05	NA	0.0023	NA	0.33	NA	0.336	NA	0.02 U	NA	0.38 J
MW8-8	06/15	NA	NA	**0.61**	NA	NA	0.04 UJ	NA	**83.2**	NA	NA	NA	1.05	NA	0.122	NA	0.00361	NA	0.28	NA	0.327 J	NA	0.02 UJ	NA	1.69
MW8-8	06/16	NA	NA	**0.8**	NA	NA	0.082	NA	**53.6**	NA	NA	NA	0.3	NA	0.147	NA	0.00264	NA	0.3	NA	0.496	NA	0.02 UJ	NA	2.1
MW8-8	07/17	NA	NA	**0.33 J**	NA	NA	0.057	NA	**70.2**	NA	NA	NA	0.32	NA	0.008 J	NA	NA	NA	0.41	NA	0.466	NA	NA	NA	0.54
MW8-8	09/18	NA	NA	**0.6 J**	NA	NA	0.061	NA	**60.4**	NA	NA	NA	0.41	NA	0.04 U	NA	NA	NA	0.43	NA	0.484	NA	NA	NA	0.5 U
MW8-8	06/19	NA	NA	**0.42 J**	NA	NA	0.207	NA	**64.4**	NA	NA	NA	0.27	NA	0.02 U	NA	NA	NA	0.57	NA	0.613	NA	NA	NA	2.2
MW8-9	11/95	**3.0 NW**	NA	NA	NA	(-)	NA	NA	NA	(-)	NA	3.6 W+	NA	(-)	NA	(-)	NA	(-)	NA	(-)	NA	(-)	NA	(-)	NA
MW8-9	05/96	NA	NA	NA	**2.6 B**	NA	(-)	NA	NA	**380**	NA	NA	(-)	NA	NA	NA	NA	NA	(-)	NA	NA	NA	(-)	NA	(-)
MW8-9	09/96	NA	NA	**3.4 BW**	NA	NA	3.5 B	(-)	NA	(-)	NA	NA	(-)	NA	NA	NA	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)
MW8-9	05/97	NA	NA	**3.2 NW**	NA	NA	(-)	NA	(-)	NA	(-)	NA	2.0 U	NA	(-)	NA	0.20 UN *	NA	5.0 U	NA	4.0 U *	NA	**134 N**	NA	(-)
MW8-9	10/97	NA	NA	**1.4 BNW**	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.35	NA	11.0 U	NA	1.0 U	NA	1.8 UNW *	NA	(-)
MW8-9	04/98	NA	NA	**1.1 BW**	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.10 U *	NA	7.0 B	NA	1.0 UN	NA	6.0 U *	NA	(-)
MW8-9	10/98	NA	NA	**5.4 B**	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.13 B	NA	38.2 B	NA	2.0 B	NA	6.0 UW *	NA	(-)
MW8-9	05/99	NA	NA	**2.0 B**	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.10 U *	NA	16.3 BN	NA	2.7 B	NA	10.0 UNW *	NA	(-)
MW8-9	11/99	NA	NA	5 U *	NA	NA	**14**	NA	8	NA	NA	NA	10 U *	NA	2 U	NA	0.2 U *	NA	20 U *	NA	10	NA	5 U	NA	10 U
MW8-9	06/00	NA	NA	**0.80 J**	NA	NA	1.05	NA	9.8	NA	16 J	NA	0.95 J	NA	0.97	NA	0.10 U *	NA	8.57 J	NA	3.7	NA	0.01 U	NA	8.6
MW8-9	06/01	NA	NA	**0.5 J**	NA	NA	1.13	NA	9.7	NA	NS	NA	0.78 J	NA	0.04 U	0.0036		NA	4.2	NA	1.61	NA	0.005 B	NA	3 U
MW8-9	06/02	NA	NA	**0.43 J**	NA	NA	0.65 J	NA	6.43	NA	NA	NA	0.90	NA	0.049 UJ	NA	0.10 U *	NA	4.97	NA	1.44 J	NA	0.003 J	NA	3.2
MW8-9	06/03	NA	NA	**0.58 J**	NA	NA	0.98	NA	6.9 J	NA	NA	NA	1.38	NA	0.23	NA	0.10 B	NA	4.85 J	NA	1.66	NA	0.015 B	NA	4.9
MW8-9	06/04	NA	NA	**0.42 B**	NA	NA	0.51	NA	7.09	NA	NA	NA	0.73	NA	0.52	NA	0.05 U *	NA	3.91	NA	1.3	NA	0.003 U	NA	1.57
MW8-9	06/05	NA	NA	**0.43**	NA	NA	0.904	NA	6.8	NA	NA	NA	0.75	NA	0.1 U	NA	0.1 U *	NA	3.5	NA	0.68	NA	0.01 U	NA	2.17
MW8-9	06/06	NA	NA	**0.49 B**	NA	NA	0.454	NA	6.87	NA	NA	NA	0.652	NA	0.02 U	NA	0.2 U *	NA	2.57 J	NA	0.863	NA	0.02 U	NA	1.01
MW8-9	06/07	NA	NA	**0.52 J**	NA	NA	0.3	NA	6.1	NA	NA	NA	8.1	NA	0.35	NA	0.2 U *	NA	2.3	NA	0.48	NA	0.02 U	NA	1.3
MW8-9	05/08	NA	NA	**0.69**	NA	NA	0.363	NA	6.38	NA	NA	NA	0.654	NA	0.026 U	NA	0.2 U *	NA	2.25	NA	0.421	NA	0.004 B	NA	0.82
MW8-9	06/09	NA	NA	**0.63 J**	NA	NA	0.59	NA	4.85	NA	NA	NA	0.659	NA	0.020 U	NA	0.2 U *	NA	1.55	NA	0.263 J	NA	0.020 U	NA	0.59
MW8-9	06/10	NA	NA	**0.73**	NA	NA	0.174	NA	4.28	NA	NA	NA	0.739	NA	0.02 UJ	NA	0.2 U *	NA	1.2	NA	0.312	NA	0.02 UJ	NA	4.57
MW8-9	07/11	NA	NA	**0.63**	NA	NA	0.343	NA	7.46	NA	NA	NA	0.739	NA	0.014 J	NA	0.2 U *	NA	1.74	NA	0.497	NA	0.02 UJ	NA	0.65
MW8-9	06/12	NA	NA	**0.61**	NA	NA	0.286	NA	6.09	NA	NA	NA	0.581	NA	0.015 J	NA	0.2 U *	NA	1.48	NA	0.43	NA	0.02 UJ	NA	0.6
MW8-9	06/13	NA	NA	**0.67**	NA	NA	0.238	NA	5.41	NA	NA	NA	0.561	NA	0.009 J	NA	0.2 U *	NA	1.28	NA	0.245	NA	0.02 UJ	NA	0.48 J
MW8-9	06/14	NA	NA	**0.66**	NA	NA	0.231	NA	6.3	NA	NA	NA	0.564	NA	0.18	NA	0.00439	NA	1.38	NA	0.36	NA	0.02 UJ	NA	0.7
MW8-9	06/15	NA	NA	**0.67 J**	NA	NA	0.438	NA	6.32	NA	NA	NA	1.98	NA	0.09	NA	0.003	NA	1.87	NA	0.488	NA	0.02 U	NA	2.5
MW8-9	06/16	NA	NA	**0.56**	NA	NA	0.523	NA	7.81	NA	NA	NA	0.99	NA	12	NA	0.00374	NA	1.54	NA	0.668	NA	0.02 U	NA	6.58
MW8-9	07/17	NA	NA	**0.49 J**	NA	NA	0.284	NA	5	NA	NA	NA	0.57	NA	0.016 J	NA	NA	NA	1.51	NA	0.439	NA	NA	NA	0.67
MW8-9	09/18	NA	NA	**0.7**	NA	NA	0.476	NA	10.3	NA	NA	NA	0.59	NA	0.05 UJ	NA	NA	NA	1.24	NA	0.507	NA	NA	NA	0.65
MW8-9	06/19	NA	NA	**0.66**	NA	NA	0.73	NA	8.3	NA	NA	NA	0.47	NA	0.059 UJ	NA	NA	NA	1.44	NA	0.375	NA	NA	NA	0.57

Table G-4. Summary of Inorganics Detected in Groundwater and Seeps at OU 2 Area 8 Exceeding One-Half of the MTCA Method B Cleanup Levels (1995-2019)

Location	Sampling Date	Analyte Concentration (µg/L)																							
		Arsenic				Cadmium		Total Chromium		Chromium VI		Copper		Lead		Mercury		Nickel		Silver		Thallium		Zinc	
		Total	Total (ICP)	Dissolved	Dissolved (ICP)	Total	Dissolved	Total	Dissolved[b]	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
RG Drinking Water		0.05[e]				5		50[c]		80		590		15		2		100		48		1.1		4,800	
RG Surface Water		0.14[a,e]				8		50[d]		50		2.5		5.8		0.025		7.9		1.2		1.6		77	
	11/95	2.0 W+	NA	NA	NA	251	NA	NA	NA	950	NA	13.4 S	NA	(-)	NA	0.22	NA	51.3	NA	4.2	NA	(-)	NA	207	NA
	05/96	NA	NA	NA	1.0 U *	NA	444	NA	NA	800	NA	NA	18.9 B	NA	NA	NA	NA	NA	39.5 B	NA	NA	NA	(-)	NA	248
	09/96	NA	NA	2.4 BW	NA	NA	262	626	NA	720	NA	NA	14.3 B	NA	NA	NA	NA	NA	42.3	NA	(-)	NA	NA	NA	166
	05/97	NA	NA	2.1 NW	NA	NA	210	NA	441	NA	610	NA	12.4	NA	(-)	NA	0.20 UN *	NA	30.5	NA	7.0 N	NA	10.0 UW *	NA	161
	10/97	NA	NA	0.66 BNW	NA	NA	278	NA	377	NA	NA	NA	11.7 B	NA	(-)	NA	0.32	NA	40.0	NA	4.4 B	NA	9.0 UNW *	NA	178
	05/98	NA	NA	0.50 UW *	NA	NA	320	NA	303	NA	NA	NA	12.5 B	NA	(-)	NA	0.10 U *	NA	36.9 B	NA	5.2 BN	NA	6.0 U *	NA	193
	10/98	NA	NA	2.1 B	NA	NA	126 E	NA	459	NA	NA	NA	9.0 B	NA	(-)	NA	0.17 B	NA	16.2 B	NA	2.2 B	NA	1.2 UW *	NA	50.9
	05/99	NA	NA	2.6 B	NA	NA	33.5 N	NA	198	NA	NA	NA	5.3 B	NA	(-)	NA	0.10 B	NA	4.6 BN	NA	2.2 U *	NA	10.0 UNW *	NA	(-)
	11/99	NA	NA	5 U *	NA	NA	205	NA	201	NA	NA	NA	10 U *	NA	2U	NA	0.2 U *	NA	20 U *	NA	10	NA	5 U *	NA	89
	06/00	NA	NA	0.80 J	NA	NA	106	NA	221	NA	227 J	NA	4.44 J	NA	0.16	NA	0.10 U *	NA	10.2 J	NA	2.09	NA	0.04	NA	109
	06/01	NA	NA	0.7 J	NA	NA	129	NA	429	NA	NS	NA	4.95 J	NA	0.062	0.0071		NA	13	NA	2.29	NA	0.038	NA	110
	06/02	NA	NA	0.52 J	NA	NA	420 J	NA	608	NA	NA	NA	4.90	NA	0.047 UJ	NA	0.10 U *	NA	9.46	NA	3.87 J	NA	0.040 J	NA	221
	06/03	NA	NA	0.61 J	NA	NA	353	NA	302 J	NA	NA	NA	5.15	NA	0.02 U	NA	0.10 U *	NA	9.10 J	NA	5.87	NA	0.041	NA	134
	06/04	NA	NA	0.57	NA	NA	357	NA	290	NA	NA	NA	5.29	NA	0.036	NA	0.08 U *	NA	31.9	NA	6.45	NA	0.053	NA	157
MW8-11	06/05	NA	NA	1.9	NA	NA	266	NA	230	NA	NA	NA	4.63	NA	0.1 U	NA	0.1 U *	NA	24.4	NA	6	NA	0.05	NA	91
	06/06	NA	NA	0.61	NA	NA	338	NA	157	NA	NA	NA	3.48	NA	0.066 U	NA	0.2 U *	NA	25.8 J	NA	6.17	NA	0.0405	NA	135
	06/07	NA	NA	0.53 J	NA	NA	231	NA	150	NA	NA	NA	3.60	NA	0.094	NA	0.2 U *	NA	19.3	NA	4.70	NA	0.038	NA	81.0
	05/08	NA	NA	0.82	NA	NA	154	NA	191	NA	NA	NA	3.44	NA	0.055 U	NA	0.2 U *	NA	15.1	NA	3.5	NA	0.025	NA	58.1
	06/09	NA	NA	0.94 J	NA	NA	115	NA	163	NA	NA	NA	3.1	NA	0.020 U	NA	0.2 U *	NA	11.1	NA	2.45 J	NA	0.024	NA	49.1
	06/10	NA	NA	0.87	NA	NA	214	NA	157	NA	NA	NA	3.09	NA	0.02 UJ	NA	0.02 J	NA	19.8	NA	5.86	NA	0.034 UJ	NA	85.7
	07/11	NA	NA	0.68	NA	NA	166	NA	165	NA	NA	NA	3	NA	0.023	NA	0.2 U *	NA	16	NA	3.55	NA	0.025	NA	68
	06/12	NA	NA	0.7	NA	NA	152	NA	153	NA	NA	NA	2.81	NA	0.02 U	NA	0.2 U *	NA	11.4	NA	3.22	NA	0.026 UJ	NA	68.4
	06/13	NA	NA	0.86	NA	NA	85.1	NA	187	NA	NA	NA	2.61	NA	0.014 J	NA	0.2 U *	NA	9.77	NA	2.77	NA	0.022 UJ	NA	44
	06/14	NA	NA	0.93	NA	NA	106	NA	164	NA	NA	NA	2.76	NA	0.05	NA	0.00973	NA	12.1	NA	2.6	NA	0.033 UJ	NA	43
	06/15	NA	NA	0.87 J	NA	NA	127	NA	182	NA	NA	NA	3.52	NA	0.047	NA	0.0102	NA	13.8	NA	3.11	NA	0.026	NA	52.4
	06/16	NA	NA	0.74	NA	NA	131	NA	145	NA	NA	NA	5.75	NA	8.02	NA	0.0114	NA	19.1	NA	4.21	NA	0.029	NA	85
	06/17	NA	NA	0.91	NA	NA	135	NA	140	NA	NA	NA	2.62	NA	0.017 J	NA	NA	NA	14.6	NA	2.7	NA	NA	NA	48
	09/18	NA	NA	0.77	NA	NA	122	NA	168	NA	NA	NA	2.81	NA	0.094 UJ	NA	NA	NA	5.87	NA	3.85	NA	NA	NA	47
	06/19	NA	NA	1.09	NA	NA	161	NA	135	NA	NA	NA	2.52	NA	0.05 U	NA	NA	NA	13.7	NA	2.77	NA	NA	NA	47.9
	11/95	5.1 N	NA	NA	NA	28.6	NA	NA	NA	1500	NA	329 S+	NA	11.7	NA	0.19	NA	34.6 +	NA	(-)	NA	(-)	NA	(-)	NA
	05/96	NA	NA	NA	3.6 B	NA	46.1	NA	NA	380	NA	NA	(-)	NA	NA	NA	NA	NA	17.9 B	NA	NA	NA	(-)	NA	29.7
	09/96	NA	NA	1.9 B	NA	NA	53.8	1740	NA	1800	NA	NA	(-)	NA	NA	NA	NA	NA	49.3	NA	(-)	NA	NA	NA	(-)
	05/97	NA	NA	2.0 UN *	NA	NA	565	NA	1280	NA	1400	NA	64.4	NA	20 UN *	NA	0.20 UN *	NA	673	NA	40 UN *	NA	1.0 UNW	NA	727
	10/97	NA	NA	1.8 BN	NA	NA	154	NA	961	NA	NA	NA	150	NA	(-)	NA	0.10 U *	NA	423	NA	1.8 B	NA	1.8 UNW *	NA	325
	05/98	NA	NA	2.4 BW	NA	NA	7.3	NA	728	NA	NA	NA	5.2 B	NA	(-)	NA	0.10 U *	NA	7.5 B	NA	1.0 BN	NA	1.2 U *	NA	(-)
	10/98	NA	NA	1.8 U *	NA	NA	6.5 E	NA	1090	NA	NA	NA	4.0 B	NA	(-)	NA	0.15 B	NA	8.9 B	NA	1.2 B	NA	1.2 U *	NA	(-)
	5/99	NA	NA	1.7 U *	NA	NA	45.7 N	NA	815 N	NA	NA	NA	19.9 B	NA	3.2 N	NA	0.10 U *	NA	70.0 N	NA	2.2 U *	NA	1.0 UNW	NA	48.9
	11/99	NA	NA	NA	NA	NA	(-)	NA	(-)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	06/00	NA	NA	0.20 J	NA	NA	20	NA	163	NA	216 J	NA	5.65 J	NA	0.75	NA	0.10 U *	NA	26.8 J	NA	0.88	NA	0.01 U	NA	24.9
	06/01	NA	NA	0.3 J	NA	NA	20.7	NA	193	NA	NA	NA	6.14 J	NA	1.2	0.0022	NA	NA	22	NA	1.24	NA	0.013 B	NA	25.3
	06/02	NA	NA	0.37 J	NA	NA	4.42 J	NA	238	NA	NA	NA	4.10	NA	0.17 UJ	NA	0.10 U *	NA	2.77	NA	0.27 K	NA	0.006 J	NA	1.8
	06/03	NA	NA	0.32 J	NA	NA	7.84	NA	107 J	NA	NA	NA	2.78	NA	0.15	NA	0.10 U *	NA	4.36 J	NA	0.47	NA	0.013 B	NA	2.3
	06/04	NA	NA	0.43 B	NA	NA	3.23	NA	146	NA	NA	NA	5.15	NA	0.096	NA	0.05 U *	NA	2.55	NA	-0.197	NA	0.007 B	NA	0.92
MW8-12	06/05	NA	NA	1.3	NA	NA	2.04	NA	114	NA	NA	NA	3.7	NA	0.219	NA	0.1 U *	NA	3	NA	0.22	NA	0.01 U	NA	5.97
	06/06	NA	NA	0.28 B	NA	NA	2.71	NA	113	NA	NA	NA	2.67	NA	0.048 U	NA	0.2 U *	NA	1.99 J	NA	0.279	NA	0.02 U	NA	4.17
	06/07	NA	NA	0.47 J	NA	NA	0.31	NA	101	NA	NA	NA	2.6	NA	0.054	NA	0.2 U *	NA	0.92	NA	0.037	NA	0.02 U	NA	0.67
	05/08	NA	NA	0.53	NA	NA	0.431	NA	100	NA	NA	NA	2.18	NA	0.036 U	NA	0.2 U *	NA	1.07	NA	0.057	NA	0.004 B	NA	0.25 B
	06/09	NA	NA	0.68 J	NA	NA	0.109	NA	80.8	NA	NA	NA	1.65	NA	0.018 J	NA	0.2 U *	NA	0.57	NA	0.016 J	NA	0.006 J	NA	0.15 J
	06/10	NA	NA	0.35 J	NA	NA	0.433	NA	74.8	NA	NA	NA	2.48	NA	0.264 J	NA	0.02 J	NA	0.93	NA	0.05	NA	0.02 UJ	NA	0.39 J
	07/11	NA	NA	0.46 J	NA	NA	0.194	NA	137	NA	NA	NA	2.22	NA	0.048	NA	0.2 U *	NA	0.66	NA	0.027 UJ	NA	0.02 UJ	NA	0.2 J
	06/12	NA	NA	0.5	NA	NA	0.128	NA	106	NA	NA	NA	1.78	NA	0.028	NA	0.2 U *	NA	0.57	NA	0.019 J	NA	0.034 J	NA	0.5 UJ
	06/13	NA	NA	4.63	NA	NA	0.063	NA	89.4	NA	NA	NA	1.53	NA	0.032	NA	0.2 U *	NA	0.42	NA	0.008 J	NA	0.02 U	NA	0.43 J
	06/14	NA	NA	2.2	NA	NA	0.096	NA	97.2	NA	NA	NA	2.7 J	NA	0.064	NA	0.00142	NA	0.33	NA	0.02 UJ	NA	0.02 U	NA	0.35 J
	06/15	NA	NA	2.3	NA	NA	0.082	NA	118	NA	NA	NA	2.11	NA	0.425	NA	0.00328	NA	0.58	NA	0.02 UJ	NA	0.02 UJ	NA	0.58
	06/16	NA	NA	0.3 J	NA	NA	0.797	NA	87.69	NA	NA	NA	2.29	NA	0.057 UJ	NA	0.00367	NA	1.11	NA	0.141	NA	0.02 U	NA	1.63
	06/17	NA	NA	0.45 J	NA	NA	0.352	NA	72.9	NA	NA	NA	1.45	NA	0.039	NA	NA	NA	0.79	NA	0.045	NA	NA	NA	0.33 J
	09/18	NA	NA	0.45 J	NA	NA	0.272	NA	159	NA	NA	NA	1.79	NA	0.061 UJ	NA	NA	NA	0.88	NA	0.052	NA	NA	NA	0.43 J
	06/19	NA	NA	0.33 J	NA	NA	2.73	NA	89.7	NA	NA	NA	1.65	NA	0.132 UJ	NA	NA	NA	2.99	NA	0.327	NA	NA	NA	13.5

Table G-4. Summary of Inorganics Detected in Groundwater and Seeps at OU 2 Area 8 Exceeding One-Half of the MTCA Method B Cleanup Levels (1995-2019)

		Analyte Concentration (µg/L)																							
		Arsenic				Cadmium		Total Chromium		Chromium VI		Copper		Lead		Mercury		Nickel		Silver		Thallium		Zinc	
Location	Sampling Date	Total	Total (ICP)	Dissolved	Dissolved (ICP)	Total	Dissolved	Total	Dissolved[b]	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
RG Drinking Water		0.05[e]				5		50[c]		80		590		15		2		100		48		1.1		4,800	
RG Surface Water		0.14[a,e]				8		50[d]		50		2.5		5.8		0.025		7.9		1.2		1.6		77	
MW8-14	11/95	5.1 W+	NA	NA	NA	22.4	NA	NA	NA	90	NA	152 S	NA	203 N	NA	0.52	NA	100	NA	(-)	NA	(-)	NA	241	NA
	05/96	NA	NA	NA	3.3 B	NA	10.9	NA	NA	(-)	NA	NA	6.7 B	NA	NA	NA	NA	NA	(-)	NA	NA	NA	(-)	NA	29.9
	09/96	NA	NA	3.1 BW	NA	NA	19.9	(-)	NA	(-)	NA	NA	(-)	NA	NA	NA	NA	NA	(-)	NA	8.6 B	NA	NA	NA	(-)
	05/97	NA	NA	2.8 NW	NA	NA	9.8	NA	(-)	NA	(-)	NA	2.0 U	NA	(-)	NA	0.20 UN *	NA	5.0 U	NA	7.3 N	NA	10.0 UN *	NA	(-)
	10/97	NA	NA	1.0 BNW	NA	NA	3.2	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.48	NA	11.0 U *	NA	2.0 B	NA	1.8 UBN *	NA	(-)
	05/98	NA	NA	0.86 BW	NA	NA	12.6	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.10 U *	NA	4.8 B	NA	1.2 BN	NA	6.0 U *	NA	(-)
	10/98	NA	NA	10.8	NA	NA	16.9 E	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.15 B	NA	4 B	NA	1.0 U	NA	6.0 UW *	NA	(-)
	05/99	NA	NA	2.2 B	NA	NA	10.5 N	NA	(-)	NA	NA	NA	13.2	NA	(-)	NA	0.10 U *	NA	(-)	NA	2.2 U *	NA	10.0 UNW *	NA	(-)
	11/99	NA	NA	5 U *	NA	NA	13	NA	7	NA	NA	NA	10 U *	NA	2U	NA	0.2U *	NA	20 U *	NA	10 U *	NA	5 U	NA	10 U
	06/00	NA	NA	2	NA	NA	13.8	NA	14.4	NA	58.8 J	NA	1.22 J	NA	0.61	NA	0.10 U *	NA	3.71 J	NA	0.564	NA	0.01 U	NA	3.2
	06/01	NA	NA	1.3 J	NA	NA	13.2	NA	29.7	NA	NA	NA	1.16 J	NA	0.959	.0009 B		NA	2.4	NA	0.31	NA	0.007 B	NA	3 U
	06/02	NA	NA	1.53 J	NA	NA	14.9 J	NA	15.8	NA	NA	NA	1.70	NA	0.74 UJ	NA	0.10 U *	NA	4.63	NA	0.44 J	NA	0.007 J	NA	4
	06/03	NA	NA	2.08 J	NA	NA	14.6	NA	16.2 J	NA	NA	NA	1.53	NA	0.74	NA	0.10 U *	NA	4.71 J	NA	0.38	NA	0.006 B	NA	2.6
	06/04	NA	NA	1.63	NA	NA	13.5	NA	22.2	NA	NA	NA	1.37	NA	0.89	NA	0.06 U *	NA	5.61	NA	0.351	NA	0.007 B	NA	2.6
	06/05	NA	NA	2	NA	NA	12.5	NA	17.8	NA	NA	NA	1.65	NA	1.1	NA	0.1 U *	NA	6.9	NA	0.46	NA	0.01 U	NA	2.92
	06/06	NA	NA	1.66	NA	NA	11.1	NA	14.9	NA	NA	NA	1.13	NA	0.682	NA	0.2 U *	NA	5.17 J	NA	0.358	NA	0.02 U	NA	2.25
	06/07	NA	NA	1.5 J	NA	NA	9.8	NA	15.4	NA	NA	NA	2.9	NA	0.99	NA	0.2 U *	NA	5.5	NA	0.33	NA	0.02 U	NA	2.6
	05/08	NA	NA	1.91	NA	NA	8.33	NA	21	NA	NA	NA	1.38	NA	0.817	NA	0.2 U *	NA	5.21	NA	0.24	NA	0.012 B	NA	2.2
	06/09	NA	NA	1.78 J	NA	NA	8.91	NA	18.2	NA	NA	NA	1.76	NA	1.18	NA	0.2 U *	NA	5.08	NA	0.259 J	NA	0.005 J	NA	2.58
	06/10	NA	NA	1.91	NA	NA	10.4	NA	28.3	NA	NA	NA	1.42	NA	1.57 J	NA	0.2 U *	NA	4.89	NA	0.383	NA	0.02 UJ	NA	2.23
	07/11	NA	NA	1.75	NA	NA	8.65	NA	15.1	NA	NA	NA	1.87	NA	1.06	NA	0.2 U *	NA	5.42	NA	0.285	NA	0.02 UJ	NA	2.38
	06/12	NA	NA	1.67	NA	NA	7.9	NA	19.8	NA	NA	NA	1.29	NA	0.88	NA	0.2 U *	NA	4.42	NA	0.223	NA	0.039 J	NA	2.1
	06/13	NA	NA	1.56	NA	NA	8.52	NA	23.9	NA	NA	NA	1.29	NA	1.07	NA	0.2 U *	NA	4.25	NA	0.237	NA	0.02 UJ	NA	2.01
	06/14	NA	NA	1.6	NA	NA	7.6	NA	15.76	NA	NA	NA	1.91	NA	1.17	NA	0.00202	NA	4.35	NA	0.25	NA	0.02 UJ	NA	2.6
	06/15	NA	NA	1.61 J	NA	NA	9.04	NA	17.94	NA	NA	NA	1.76	NA	1.71	NA	0.00197	NA	5.19	NA	0.286	NA	0.011 J	NA	3.1
	06/16	NA	NA	1.35	NA	NA	6.94	NA	14.78	NA	NA	NA	1.83	NA	1.96	NA	0.00125	NA	4.64	NA	0.232	NA	0.008 J	NA	4.42
	06/17	NA	NA	1.47	NA	NA	5.91	NA	12.4	NA	NA	NA	1.39	NA	0.984	NA	NA	NA	4.37	NA	0.21	NA	NA	NA	2.41
	09/18	NA	NA	1.61	NA	NA	10.1	NA	31.2	NA	NA	NA	1.26	NA	1.45	NA	NA	NA	3.59	NA	0.305	NA	NA	NA	2.69
	06/19	NA	NA	1.53	NA	NA	7.14 J	NA	13.5	NA	NA	NA	1.25	NA	1.37	NA	NA	NA	5.08	NA	0.234	NA	NA	NA	2.43
MW8-15	11/95	(-)	NA	1.0 UN *	NA	(-)	(-)	NA	NA	(-)	NA	2.5 +	(-)	(-)	(-)	(-)	NA	(-)	9.3 +	(-)	3.0 UNW *	NS	(-)	(-)	35.6
	06/19	NA	NA	0.23 J	NA	NA	0.02 U	NA	0.28	NA	NA	NA	0.02 U	NA	0.025 UJ	NA	NA	NA	0.29	NA	0.020 U	NA	NA	NA	2.0 U
MW8-16	11/95	2.3 +	NA	NA	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	(-)	NA	0.16	NA	(-)	NA	(-)	NA	(-)	NA	(-)	NA
	05/96	NA	NA	NA	2.8 B	NA	(-)	NA	NA	(-)	NA	NA	(-)	NA	NA	NA	NA	NA	(-)	NA	NA	NA	1.1 BNW	NA	(-)
	09/96	NA	NA	2.9 B	NA	NA	(-)	(-)	NA	(-)	NA	NA	(-)	NA	NA	NA	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)
	05/97	NA	NA	2.3 N	NA	NA	(-)	NA	(-)	NA	(-)	NA	2.0 U	NA	(-)	NA	0.20 UN *	NA	5.0 U	NA	4.0 UN *	NA	1.0 UNW	NA	(-)
	10/97	NA	NA	1.4 BN	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.10 U *	NA	11.0 U *	NA	1.0 U	NA	1.8 UN *	NA	(-)
	05/98	NA	NA	1.2 B	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.10 U *	NA	5.7 B	NA	1.0 UN	NA	1.2 U *	NA	(-)
	10/98	NA	NA	1.8 U *	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)	NA	(-)	NA	0.10 U *	NA	(-)	NA	1.0 U	NA	1.2 U *	NA	(-)
	05/99	NA	NA	1.7 U *	NA	NA	(-)	NA	(-)	NA	NA	NA	(-)	NA	3.4 N	NA	0.11 B	NA	4,1 BN	NA	2.2 U *	NA	1.0 UNW	NA	(-)
	11/99	NA	NA	5 U *	NA	NA	4 U	NA	5U	NA	NA	NA	10 U *	NA	2 U	NA	0.2 U *	NA	20 U *	NA	10 U *	NA	5 U *	NA	10 U
	06/00	NA	NA	1.14 J	NA	NA	0.16	NA	.17 U	NA	4.0 U	NA	0.20 J	NA	7 U *	NA	0.10 U *	NA	1.02 J	NA	0.020 B	NA	0.03 U	NA	4
	06/01	NA	NA	1.5 J	NA	NA	0.21	NA	0.45	NA	NA	NA	0.2 R	NA	0.04 U	.0003 B	NA	NA	1.4	NA	0.07 U	NA	0.005 U	NA	36.5
	06/02	NA	NA	1.82 J	NA	NA	0.065 J	NA	0.04 U	NA	NA	NA	0.20	NA	0.011 UJ	NA	0.10 U *	NA	2.59	NA	0.001 J	NA	0.002 J	NA	1.7
	06/03	NA	NA	2.37 J	NA	NA	0.42	NA	1.0 UJ	NA	NA	NA	0.10 U	NA	0.10 U	NA	0.10 U *	NA	9.34 J	NA	0.04 U	NA	0.02 U	NA	2.3 B
	06/04	NA	NA	2.75	NA	NA	0.055	NA	0.04 U	NA	NA	NA	0.38	NA	0.011 B	NA	0.04 U *	NA	3.76	NA	0.005 U	NA	0.001 U	NA	1.07
	06/05	NA	NA	3	NA	NA	2 U	NA	5 U	NA	NA	NA	2	NA	2 U	NA	0.1 U *	NA	10 U *	NA	3 U *	NA	1 U	NA	6 U
	06/06	NA	NA	2.44	NA	NA	0.186	NA	0.2 U	NA	NA	NA	0.043 B	NA	0.02 U	NA	0.2 U *	NA	3.61 J	NA	0.028	NA	0.02 U	NA	1.15
	06/07	NA	NA	2.3 J	NA	NA	0.098	NA	1	NA	NA	NA	0.77	NA	0.075	NA	0.2 U *	NA	2.7	NA	0.02 U	NA	0.02 U	NA	1
	05/08	NA	NA	3.61	NA	NA	0.125	NA	0.41	NA	NA	NA	0.043 B	NA	0.044 U	NA	0.2 U *	NA	0.64	NA	0.01 B	NA	0.002 U	NA	0.36 B
	06/09	NA	NA	3.50 J	NA	NA	0.013 J	NA	0.10 J	NA	NA	NA	0.156	NA	0.020 U	NA	0.2 U *	NA	0.42	NA	0.004 J	NA	0.02 U	NA	0.10 J
	06/10	NA	NA	1.52	NA	NA	0.022 UJ	NA	0.06 J	NA	NA	NA	0.1 UJ	NA	0.02 UJ	NA	0.2 U *	NA	1	NA	0.005 J	NA	0.02 UJ	NA	0.21 J
	07/11	NA	NA	4.1	NA	NA	0.059	NA	0.29	NA	NA	NA	0.72	NA	0.02 UJ	NA	0.2 U *	NA	0.65	NA	0.02 UJ	NA	0.02 U	NA	0.46 J
	06/12	NA	NA	2.04	NA	NA	0.027	NA	0.33	NA	NA	NA	0.295	NA	0.009 J	NA	0.2 U *	NA	0.35	NA	0.015 J	NA	0.02 UJ	NA	0.5 UJ
	06/13	NA	NA	4.19	NA	NA	0.037	NA	2.49	NA	NA	NA	0.5	NA	0.042	NA	0.2 U *	NA	0.68	NA	0.053	NA	0.02 U	NA	1.25
	06/14	NA	NA	3.9	NA	NA	0.013 J	NA	1.11	NA	NA	NA	1.06 J	NA	0.054	NA	0.00289	NA	0.31	NA	0.022 UJ	NA	0.02 U	NA	0.84
	06/15	NA	NA	2.6	NA	NA	0.022	NA	0.42	NA	NA	NA	0.66	NA	0.046	NA	0.00218	NA	0.26	NA	0.02 UJ	NA	0.02 UJ	NA	0.99
	06/16	NA	NA	2.14	NA	NA	0.074	NA	0.2 UJ	NA	NA	NA	0.1 UJ	NA	0.02 UJ	NA	0.00034 B	NA	1.93	NA	0.02 UJ	NA	0.007 J	NA	0.76
	06/17	NA	NA	2.17	NA	NA	0.006 J	NA	1.01	NA	NA	NA	0.1 UJ	NA	0.016 J	NA	NA	NA	4.45	NA	0.008 J	NA	NA	NA	0.5
	09/18	NA	NA	2.39	NA	NA	0.02 UJ	NA	1.86	NA	NA	NA	0.06 J	NA	0.05 U	NA	NA	NA	4.1	NA	0.02 U	NA	NA	NA	0.52
	06/19	NA	NA	2.21	NA	NA	0.02 U	NA	0.51	NA	NA	NA	0.1 U	NA	0.05 U	NA	NA	NA	5.85	NA	0.02 U	NA	NA	NA	0.22

Table G-4. Summary of Inorganics Detected in Groundwater and Seeps at OU 2 Area 8 Exceeding One-Half of the MTCA Method B Cleanup Levels (1995-2019)

		Analyte Concentration (µg/L)																							
		Arsenic				Cadmium		Total Chromium		Chromium VI		Copper		Lead		Mercury		Nickel		Silver		Thallium		Zinc	
Location	Sampling Date	Total	Total (ICP)	Dissolved	Dissolved (ICP)	Total	Dissolved	Total	Dissolved[b]	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved	Total	Dissolved
RG Drinking Water		0.05[e]				5		50[c]		80		590		15		2		100		48		1.1		4,800	
RG Surface Water		0.14[a,e]				8		50[d]		50		2.5		5.8		0.025		7.9		1.2		1.6		77	
MW8-17	11/95	**3.0 N**	NA	NA	NA	(-)	NA	NA	NA	(-)	NA	26.7 S+	NA	(-)	NA	0.11	NA	35.2 +	NA	(-)	NA	NA	(-)	(-)	NA
MW8-18	11/95	**1.8 N**	NA	**1.2 N**	NA	(-)	(-)	NA	NA	(-)	NA	3.8 +	(-)	(-)	(-)	(-)	NA	16.0 +	9.0 +	(-)	3.0 UNW *	NA	(-)	(-)	(-)
MW8-19	11/95	**3.3 NW**	NA	**1.9 N**	NA	(-)	(-)	NA	NA	(-)	NA	22.9 S+	1.3 +	3.2	NA	(-)	NA	25.7 +	9.0 U + *	(-)	3.0 UNW *	NA	(-)	(-)	(-)
MW8-20	11/95	(-)	NA	NA	NA	(-)	NA	NA	NA	(-)	NA	7.9 +	NA	(-)	NA	(-)	NA	18.6 +	NA	(-)	NA	NA	(-)	(-)	NA
Seep A[f]	05/96	NA	NA	NA	1.3 B	46.7	33.9	183	159	240	NA	7.8 B	5.1 B	NA	NA	NA	NA	NA	(-)	NA	NA	NA	NA	NA	(-)
	05/97	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	(-)	NA	NA
	06/00	NA	NA	2.4 J	NA	NA	0.14	NA	0.6	NA	NA	NA	0.27	NA	1.3 J	NA	NA	NA	5.59 J	NA	1.14 J	NA	0.02	NA	0.8
	06/01	NA	NA	0.9 J	NA	NA	23.2	NA	5.6	NA	NA	NA	1 J	NA	0.06	0.0034	NA	NA	1	NA	0.1	NA	0.022	NA	7.6 B
	06/02	NA	NA	1.95 J	NA	NA	2.57 J	NA	0.44 U	NA	NA	NA	0.80	NA	0.054 UJ	NA	0.10 U *	NA	0.95	NA	0.011 UJ	NA	0.003 J	NA	1.3
	06/03	NA	NA	1.29 J	NA	NA	38.3	NA	7.6 J	NA	NA	NA	0.89	NA	0.03	NA	0.10 U *	NA	1.22 J	NA	0.02	NA	0.012 B	NA	4.5 B
	06/04	NA	NA	0.66	NA	NA	88.9	NA	45.5	NA	NA	NA	1.08	NA	0.032	NA	0.06 U *	NA	4.29	NA	0.031	NA	0.015 B	NA	0.83
	06/05	NA	NA	1.7	NA	NA	50.3	NA	11	NA	NA	NA	1.13	NA	0.1 U	NA	0.1 U *	NA	2	NA	0.032 U	NA	0.014	NA	1.83
	06/06	NA	NA	1.21	NA	NA	14.4	NA	3.58	NA	NA	NA	0.814	NA	0.08 U	NA	0.2 U *	NA	1.74 J	NA	0.162	NA	0.02 U	NA	1.4
	06/07	NA	NA	1 J	NA	NA	19.4	NA	7.2	NA	NA	NA	1.2	NA	0.063	NA	0.2 U *	NA	1.5	NA	0.02 U	NA	0.02 U	NA	1.5
	05/08	NA	NA	2.48	NA	NA	7.96	NA	10.6	NA	NA	NA	0.867	NA	0.092 U	NA	0.2 U *	NA	1.77	NA	0.037	NA	0.01 B	NA	1.44
	06/09	NA	NA	1.50 J	NA	NA	2.57	NA	5.0	NA	NA	NA	0.383	NA	0.028	NA	0.2 U *	NA	1.18	NA	0.013 J	NA	0.003 J	NA	1.00
	06/10	NA	NA	1.66	NA	NA	6.6	NA	4.87	NA	NA	NA	0.517	NA	0.042 UJ	NA	0.2 U *	NA	1.94	NA	0.03	NA	0.02 UJ	NA	2.58
	07/11	NA	NA	1.19	NA	NA	1.08	NA	3.59	NA	NA	NA	0.651	NA	0.036	NA	0.2 U *	NA	1.58	NA	0.02 UJ	NA	0.02 UJ	NA	0.6
	06/12	NA	NA	0.98	NA	NA	15.4	NA	7.52	NA	NA	NA	0.468	NA	0.047	NA	0.2 U *	NA	2.99	NA	0.107	NA	0.026 UJ	NA	1.21
	06/13	NA	NA	1.27	NA	NA	0.848	NA	4.32	NA	NA	NA	0.435	NA	0.016 J	NA	0.2 U *	NA	1.03 UJ	NA	0.009 J	NA	0.02 UJ	NA	0.68
	06/14	NA	NA	1.1	NA	NA	2.9	NA	7.3	NA	NA	NA	0.511	NA	0.03	NA	0.00162	NA	1.97	NA	0.02 UJ	NA	0.02 UJ	NA	0.8
	06/15	NA	NA	0.99 J	NA	NA	0.729	NA	1.37	NA	NA	NA	0.38	NA	0.047	NA	0.00506	NA	1.05	NA	0.011 J	NA	0.006 J	NA	2.3
	06/16	NA	NA	0.89	NA	NA	10.5	NA	3.22	NA	NA	NA	0.372	NA	0.053 UJ	NA	0.00134	NA	6.83	NA	0.057	NA	0.008 J	NA	0.62
	06/17	NA	NA	0.93	NA	NA	10.5	NA	6.14	NA	NA	NA	0.42	NA	0.034	NA	NA	NA	6.78	NA	0.039	NA	NA	NA	0.87
Seep B[f]	05/96	NA	3.0 B	NA	4.6 B	(-)	(-)	NA	NA	(-)	NA	24.5 B	8.5 B	NA	NA	NA	NA	NA	(-)	NA	NA	NA	NA	NA	(-)
	05/97	NA	NA	NA	NA	NA	NS	NA	NS	NA	NA	NA	NS	NA	NA	NA	NA	NA	NS	NA	NA	NA	(-)	NA	NA
	06/00	NA	NA	2.5 J	NA	NA	0.82	NA	6.4	NA	NA	NA	0.76	NA	.22 J	NA	NA	NA	.83 J	NA	0.297 J	NA	0.01 U	NA	1.4
	06/01	NA	NA	1.4 J	NA	NA	1.52	NA	4.4	NA	NA	NA	0.8 J	NA	0.04 U	.0009 B	NA	NA	1	NA	0.1 U	NA	0.011 B	NA	3.4 U
	06/02	NA	NA	1.29 J	NA	NA	2.23 J	NA	3.54	NA	NA	NA	0.90	NA	0.024 UJ	NA	0.10 U *	NA	1.95	NA	0.049 J	NA	0.011 J	NA	1.9
	06/03	NA	NA	1.33 J	NA	NA	4.18	NA	2.9 J	NA	NA	NA	0.76	NA	0.02 U	NA	0.10 U *	NA	1.26 J	NA	0.09	NA	0.013 B	NA	9.0 B
	06/04	NA	NA	1.02	NA	NA	8.33	NA	15.9	NA	NA	NA	0.71	NA	0.27	NA	0.06 U *	NA	4.31	NA	0.097	NA	0.017 B	NA	0.97
	06/05	NA	NA	1.43	NA	NA	2.06	NA	6.52	NA	NA	NA	0.89	NA	0.1 U	NA	0.1 U *	NA	2.77	NA	0.035	NA	0.01 U	NA	1.12
	06/06	NA	NA	1.32	NA	NA	2.1	NA	3.33	NA	NA	NA	0.602	NA	0.022	NA	0.2 U *	NA	2.64 J	NA	0.085	NA	0.02 U	NA	1.01
	06/07	NA	NA	1.1 J	NA	NA	1.1	NA	2.7	NA	NA	NA	0.6	NA	0.058	NA	0.2 U *	NA	1.8	NA	0.02 U	NA	0.02 U	NA	0.96
	05/08	NA	NA	2.27	NA	NA	1.26	NA	3.28	NA	NA	NA	0.668	NA	0.18 U	NA	0.2 U *	NA	2.11	NA	0.051	NA	0.019 B	NA	1.39
	06/09	NA	NA	1.26 J	NA	NA	0.616	NA	3.19	NA	NA	NA	0.618	NA	0.058	NA	0.2 U *	NA	1.10	NA	0.009 J	NA	0.004 J	NA	0.73
	06/10	NA	NA	1.4	NA	NA	0.928	NA	3.7	NA	NA	NA	0.646	NA	0.02 UJ	NA	0.2 U *	NA	1.46	NA	0.202	NA	0.02 UJ	NA	2.31
	07/11	NA	NA	1.17	NA	NA	1.05	NA	3.53	NA	NA	NA	0.69	NA	0.025	NA	0.2 U *	NA	1.61	NA	0.024 UJ	NA	0.018 J	NA	0.68
Seep C	09/18	NA	NA	1.18	NA	NA	20.8	NA	5.51	NA	NA	NA	0.92	NA	0.209 UJ	NA	NA	NA	1.58	NA	0.018 J	NA	NA	NA	2.25
	06/19	NA	NA	1.3	NA	NA	0.726	NA	4.36	NA	NA	NA	0.7	NA	0.050 U	NA	NA	NA	1.26	NA	0.007 J	NA	NA	NA	0.50 U

[a]Value listed is the lower of the cancer or noncancer value.
[b]Results are less than the results reported for chromium (VI) because of variation in analytical methods. Variance in results for these analytes is common.
[c]Value is for total chromium. Chromium (VI) is 80 µg/L.
[d]50 µg/L is for chromium (VI). There is no goal for total chromium.
[e]The background concentration of arsenic in groundwater at the site is 12 µg/L.
[f]Seeps are only compared to surface water RGs.

Notes:
Data from 1995 to 2004 are from U.S. Navy 2005a, from 2005 to 2008 are from U.S. Navy 2008e, from 2009 are from U.S. Navy 2009d, and from 2010 through 2014 are from U.S. Navy 2014b (updated some values based on Naval Installation Restoration Information Solution download).
Shaded row indicates data evaluated in this 5-year review period.
Bolded value indicates it exceeds or is equal to the RG for drinking water.
Yellow highlightec value exceeds or is equal to the surface water RG.
* - The reporting limit exceeds the RG.
(-) - undetected above one-half of the MTCA Method B cleanup levels
\+ - Duplicate analysis is not within control limits.
B - between instrument detection limit and contract required detection limit
J - The result is an estimated concentration that is less than the MRL, but greater than or equal to the MDL.
MDL - method detection limit
µg/L - microgram per liter
MRL - method reporting limit
MTCA - Model Toxics Control Act
N - Spiked sample is outside of control limits.
NA - not analyzed
RG - remediation goal
S - determined by method of standard additions
W - Post-digestion spike for furnace atomic absorption spectrophotometric analysis is out of control limits (85 to 115%), and sample is less than 50% of spike absorbance.
U - The compound was analyzed for, but was not detected ("nondetect") at or above the MRL/MDL.

Table G-5. PFAS Results for Area 8 Groundwater Sampling Locations, 2018 and 2019

Well Identification	**MW8-8**	**MW8-8**	**MW8-9**	**MW8-9**	**MW8-11**	**MW8-11**	**MW8-11 (Dup)**	**MW8-11 (Dup)**	**MW8-12**	**MW8-12**	**MW8-14**	**MW8-14**	**MW8-15**	**MW8-15**	**MW8-16**	**MW8-16**	**Field Blank**	**Field Blank**	**Field Blank**
	AREA-8-18-200	**AREA-8-19-200**	**AREA-8-18-201**	**AREA-8-19-201**	**AREA-8-18-202**	**AREA-8-19-202**	**AREA-8-18-203**	**AREA-8-19-203**	**AREA-8-18-204**	**AREA-8-19-204**	**AREA-8-18-205**	**AREA-8-19-205**	**AREA-8-18-207**	**AREA-8-19-207**	**AREA-8-18-206**	**AREA-8-19-206**	**AREA-8-18-210**	**AREA-8-19-212**	**AREA-8-19-213**
Sample Date	**09/17/18**	**06/10/19**	**09/17/18**	**06/11/19**	**09/18/18**	**06/25/19**	**09/18/18**	**06/25/19**	**09/17/18**	**06/10/19**	**09/18/18**	**06/25/19**	**09/18/18**	**06/10/19**	**09/17/18**	**06/11/19**	**09/17/18**	**06/10/19**	**06/25/19**
Units	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**	**ng/L**
Analyte																			
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	19 U	21 U	19 U M	20 U	19 U	18 U M	19 U	18 U	18 U	20 U	19 U	18 U	19 U	20 U	19 U	20 U	18 U	20 U	18 U
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	19 U	21 U	19 U	20 U	19 U	18 U	19 U M	18 U	18 U	20 U	19 U M	18 U	19 U	20 U	19 U	20 U	18 U M	20 U	18 U M
Perfluorobutanesulfonic acid (PFBS)	**4.7**	**4.8**	**0.79 J M**	**0.76 J M**	**1.2 J M**	**1.1 J M**	**1.3 J**	**0.93 J M**	**4.5**	**3.6**	1.9 U M	1.8 U M	1.9 U	2.0 U	**0.77 J M**	**0.74 J**	1.8 U	2.0 U M	1.8 U
Perfluorodecanoic acid (PFDA)	**3.9**	**2.6**	1.9 U	2.0 U	**0.53 J**	**0.68 J**	**0.79 J M**	**0.66 J**	**2.7**	**1.5 J M**	1.9 U M	1.8 U	1.9 U	2.0 U	**0.75 J**	**0.76 J M**	1.8 U	2.0 U M	1.8 U
Perfluorododecanoic acid (PFDoA)	1.9 U	2.1 U	1.9 U	2.0 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	2.0 U	1.9 U	1.8 U	1.9 U	2.0 U	1.9 U	2.0 U	1.8 U	2.0 U	1.8 U
Perfluoroheptanoic acid (PFHpA)	**8.4**	**6.5 M**	**0.72 J**	**1.1 J M**	**3.5**	**3.0 M**	**3.4**	**2.6 M**	**7.7**	**4.7 M**	1.9 U	1.8 U	1.9 U	2.0 U M	**1.2 J**	**0.99 J M**	1.8 U	2.0 U M	1.8 U
Perfluorohexanesulfonic acid (PFHxS)	**2.6**	1.8 J M	4.6	**2.5 M**	**3.2**	**2.7 M**	**3.5**	**2.8 M**	**2.9**	**2.6 M**	**0.61 J M**	**0.60 J J1 M**	1.9 U	2.0 U M	**1.3 J M**	**1.3 J M**	1.8 U	2.0 U M	1.8 U M
Perfluorohexanoic acid (PFHxA)	**13**	**13**	**1.5 J M**	**2.4 M**	**3.5**	**3.3 M**	**3.5**	**3.3 M**	**13**	**11 M**	1.9 U M	**0.46 J**	1.9 U	2.0 U M	**1.8 J M**	**1.8 J M**	1.8 U	2.0 U	1.8 U
Perfluorononanoic acid (PFNA)	**3.7**	**2.8**	1.9 U M	2.0 U M	**1.0 J M**	**1.2 J**	**1.3 J**	**1.2 J M**	**3.7 M**	**2**	1.9 U J1 M	1.8 U	1.9 U	2.0 U	**0.60 J M**	**0.55 J M**	1.8 U	2.0 U M	1.8 U
Perfluorooctanesulfonic acid (PFOS)	**47**	**42**	**7.6**	**6.0 M**	**63**	**46**	**57**	**42**	**60**	**31**	**1.9 J M**	**1.7 J M**	3.8 U M	4.0 U M	**5.9**	**6.4 M**	3.5 U M	3.9 U M	3.6 U
Perfluorooctanoic acid (PFOA)	**17**	**13**	**1.7 J M**	**2.1 M**	**11**	**8.4 M**	**10 M**	**8.1 M**	**17 M**	**8.6 M**	**0.64 J M**	**0.62 J M**	1.9 U M	2.0 U	**2.4 M**	**2.4 M**	1.8 U M	2.0 U	1.8 U M
Perfluorotetradecanoic acid (PFTeA)	3.7 U	4.1 U	3.7 U	4.0 U	3.8 U M	3.5 U	3.8 U	3.5 U	3.6 U	4.1 U	3.7 U	3.5 U	3.8 U	4.0 U	3.8 U	4.0 U	3.5 U	3.9 U	1.8 U
Perfluorotridecanoic acid (PFTriA)	3.7 U	4.1 U	3.7 U	4.0 U	3.8 U	3.5 U	3.8 U	3.5 U	3.6 U	4.1 U	3.7 U	3.5 U	3.8 U	4.0 U	3.8 U	4.0 U	3.5 U	3.9 U	1.8 U
Perfluoroundecanoic acid (PFUnA)	1.9 U M	2.1 U M	1.9 U	2.0 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U M	2.0 U	1.9 U J1	1.8 U M	1.9 U	2.0 U M	1.9 U	2.0 U M	1.8 U	2.0 U M	1.8 U
Total PFOS + PFOA	**64**	**55**	**9.3 J M**	**8.1 M**	**74**	**54.4 M**	**67 M**	**50.1 M**	**77 M**	**39.6 M**	**2.54 J M**	**2.32 J M**	5.7 U	6.0 U	**8.3**	**8.8**	5.3 U M	5.9 U M	5.4 U M
EPA Heath Advisory Level for PFOA, PFOS, or PFOA+PFOS	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**

Notes:

Bold indicates the analyte was detected in the groundwater sample.

Shading indicates detected value is equal to or exceeds EPA Health Advisory Level of 70 ng/L.

Dup – field duplicate

J – analyte was positively identified; but the result is estimated estimation

J1 – the result is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria

M – manual integrated compound

ng/L – nanograms per liter

U – not detected at value shown

Table G-6. Selected VOC Results for OU 2 Area 8 Surface Water, June 2019

Location ID	Sample ID	Sampling Date	TCE (µg/L)	PCE (µg/L)	1,1-DCE (µg/L)	cis-1,2-DCE (µg/L)	1,1,1-TCA (µg/L)
Surface Water Remediation Goals			**81**	**8.9**	**3.2**	**--**	**42,000**
Seep C	AREA-8-19-210	06/17/19	0.2 UJ M J1	0.5 UJ J1	0.2 UJ M J1	0.2 UJ M J1	0.2 UJ J1
Seep C (DUP)	AREA-8-19-211	06/17/19	0.2 UJ M	0.5 UJ	0.2 UJ M	0.2 UJ M	0.2 UJ M

Notes:

Shading indicates detected value is equal to or exceeds surface water RG.

µg/L – microgram(s) per liter

DCE – dichloroethene

DUP – field duplicate

J1 –the result is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria

M – manually integrated compound

PCE – tetrachloroethene

TCA – trichloroethane

TCE – trichloroethene

UJ – analyte not detected, but the reported quantitation/detection limit is estimated

Table G-7. Dissolved Metals Results for OU 2 Area 8 Surface Water, June 2019

Location ID	Sample ID	Sampling Date	Arsenic (µg/L)	Cadmium (µg/L)	Chromium (µg/L)	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Silver (µg/L)	Zinc (µg/L)
Surface Water Remediation Goals			**0.14**[1/]	**8**	**50**[2/]	**2.5**	**5.8**	**7.9**	**1.2**	**77**
Seep C	AREA-8-19-210	06/17/19	1.3	0.418	0.32	0.44	0.077 UJ	0.5	0.02 U	1.19
Seep C (DUP)	AREA-8-19-211	06/17/19	1.28	0.539	0.39	0.47	0.066 UJ	0.54	0.02 U	1.18

Notes:

[1/]The background concentration of arsenic in groundwater at the site is 12 µg/L.

[2/]The RG of 50 µg/L is for hexavalent chromium [Cr(VI)]. There is no RG established for total dissolved chromium.

All concentrations are dissolved (except where noted above) and in µg/L.

Shading indicates detected value is equal to or exceeds the surface water RG.

µg/L – microgram(s) per liter

DUP – field duplicate

U – analyte was not detected at or above the indicated practical quantitation limit

UJ – analyte not detected, but the reported quantitation/detection limit is estimated

Table G-8. Dissolved Metals for OU 2 Area 8 Sediment, June 2019

Location ID	Sample ID	Sampling Date	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Sediment Cleanup Goal[1/]			**57**	**5.1**	**260**	**390**	**450.0**	**NE**	**6.1**	**410**
Seep C	AREA-8-19-250	06/19/19	1.9 D	**14 JD J1**	46 D J1	11 JD J1	4.3 D	22 JD J1	0.48 D	36 JD
Seep C (DUP)	AREA-8-19-251	06/19/19	2.0 JD	**13 JD**	46 JD	12 JD	5.3 D	21 JD	0.66 D	42 JD

Notes:

[1/]The sediment cleanup goals are equal to the Washington State SQS values.

Bold indicates detected value is equal to or exceeds the sediment cleanup goal.
mg/kg – milligram(s) per kilogram
D – result reported from a diluted analysis
DUP – field duplicate
J – analyte positively identified, but result is estimated
J1 – the result is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria
SQS – Sediment Quality Standard

APPENDIX H
OU 2 AREA 8 DATA COLLECTED DURING FYR PERIOD

Table H-1. Metals and Total Solids Analysis Results for Reference Area Tissue

Sampling Station ID	Sample Date	Sample No.	Arsenic (mg/kg)	Inorganic Arsenic (µg/g)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)	Mercury (ng/g)	Methyl Mercury (ng/g)	Total Solids (%)
		Mean [a]	**2.22**	**0.035**	**0.445**	**0.4**	**1.16**	**0.022**	**0.399**	**--**	**15**	**6.2**	**3.9**	**14.6**
		Median [a]	**2.19**	**0.033**	**0.438**	**0.343**	**1.12**	**0.0204**	**0.368**	**--**	**14.8**	**6.19**	**3.7**	**14.6**
		Minimum [a]	**1.7**	**0.026**	**0.31**	**0.216**	**0.896**	**0.0132**	**0.229**	**--**	**13.1**	**3.35**	**2.2**	**13.3**
		Maximum [a]	**3.09**	**0.055**	**0.63**	**1.72**	**1.45**	**0.0678**	**1.2**	**0.0475**	**17.1**	**8.22**	**6.6**	**16.2**
No. of Detected / No. Sampled			**22/22**	**22/22**	**22/22**	**22/22**	**22/22**	**22/22**	**22/22**	**1/22**	**22/22**	**22/22**	**22/22**	**22/22**
Range of Reporting Limits			**--**	**--**	**--**	**--**	**--**	**--**	**--**	**0.0069-0.0186**	**--**	**--**	**--**	**--**
PP01	6/2/2015	PP1-CL15	2.08	0.037	0.512	0.387	1.04	0.025	0.441	0.0156 U	16.2	3.35	3.4	13.3
PP02	6/2/2015	PP2-CL15	1.7	0.037	0.484	0.251	1.23	0.0164	0.348	0.0126 U	17	6.19	3.6	13.7
PP03	6/2/2015	PP3-CL15	1.72	0.041	0.438	0.432	1.12	0.0219	0.486	0.0143 U	15.6	6.51	3.2	13.7
PP04	6/2/2015	PP4-CL15	1.87	0.034	0.365	0.461	1.29	0.021	0.414	0.0186 U	14.9	5.26	3.3	14.4
PP05	6/2/2015	PP5-CL15	2.14	0.043	0.629	0.381	1.42	0.0211	0.445	0.0118 U	16.6	6.1	6.6	13.9
PP06	6/2/2015	PP6-CL15	2.12	0.035	0.372	0.31	1.35	0.0244	0.412	0.0101 U	17	5.86	3.7	14.6
PP07	6/2/2015	PP7-CL15	2.26	0.031	0.404	0.329	0.986	0.0295	0.318	0.0086 U	14.1	6.56	4.1	14.6
PP08	6/2/2015	PP8-CL15	1.79	0.045	0.31	0.496	1.34	0.0229	0.404	0.0115 U	14	5.79	3.2	15.2
PP09	6/2/2015	PP9-CL15	3.09	0.035	0.506	0.307	0.994	0.0149	0.385	0.0076 U	13.8	6.28	4.3	13.9
PP10	6/3/2015	PP10-CL15	2.28	0.029	0.444	0.285	1.19	0.0194	0.335	0.0073 U	14.7	5.78	4.2	14.1
PP11	6/3/2015	PP11-CL15	1.93	0.03	0.418	0.383	1.12	0.0184	0.443	0.0089 U	15.5	6.59	4.4	15.2
PP12	6/3/2015	PP12-CL15	2.31	0.026	0.462	0.258	1.04	0.0142	0.287	0.009 U	13.1	5.38	4.6	14.7
PP13	6/3/2015	PP13-CL15	2.83	0.03	0.49	0.395	0.896	0.0152	0.387	0.0096 U	13.5	5.18	2.2	13.5
PP14	6/3/2015	PP14-CL15	2.6	0.055	0.411	1.72	1.32	0.0678	1.2	0.0093 U	14.7	8.17	4.3	16.2
PP15	6/3/2015	PP15-CL15	2.23	0.036	0.415	0.283	1.07	0.0228	0.311	0.0475	14.5	8.22	4.6	16.1
PP16	6/3/2015	PP16-CL15	2.01	0.031	0.481	0.357	1.27	0.0164	0.362	0.0129 U	14.5	6.45	3.7	15.3
PP17	6/3/2015	PP17-CL15	2.13	0.033	0.461	0.369	1.45	0.0222	0.373	0.0117 U	14.7	7.71	3.7	15.5
PP18	6/3/2015	PP18-CL15	2.34	0.029	0.396	0.235	0.96	0.0151	0.229	0.0113 U	17.1	6.18	3.7	16.1
PP19	6/3/2015	PP19-CL15	2.72	0.03	0.565	0.216	0.996	0.0132	0.253	0.0094 U	13.5	7.55	3.3	13.8
PP20	6/3/2015	PP20-CL15	2.37	0.032	0.437	0.224	1.01	0.0198	0.325	0.0069 U	14.9	6.4	3.8	13.9
PP21	6/3/2015	PP21-CL15	1.91	0.032	0.349	0.431	1.12	0.0234	0.339	0.0123 U	14.8	5.19	2.9	14.9
PP22	6/3/2015	PP22-CL15	2.43	0.031	0.434	0.298	1.28	0.0186	0.287	0.0098 U	15.3	5.64	4.5	14.9

Notes:
Tissue results are reported in wet weight.
[a] Only detected concentrations are included
ID - identification
µg/g - microgram per gram
mg/kg - milligram per kilogram
ng/g - nanogram per gram
No. - number
U - The compound was analyzed for, but was not detected ("nondetect") at or above the method reporting limit/method detection limit

Table H-2. Metals and Total Solids Analysis Results for Area 8 Tissue

Transect	Sampling Station ID	Sample Date	Sample No.	Arsenic (mg/kg)	Inorganic Arsenic (µg/g)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)	Mercury (ng/g)	Methyl Mercury (ng/g)	Total Solids (%)
Mean [a]				**2.32**	**0.027**	**0.375**	**0.478**	**1.22**	**0.0723**	**0.476**	**0.176**	**13.4**	**16.1**	**8.3**	**16.4**
Median [a]				**2.27**	**0.026**	**0.264**	**0.396**	**1.2**	**0.0727**	**0.435**	**0.117**	**13.6**	**13.6**	**7.9**	**16.5**
Minimum [a]				**1.65**	**0.017**	**0.169**	**0.155**	**0.759**	**0.0431**	**0.27**	**0.0371**	**9.6**	**8.6**	**1**	**11.8**
Maximum [a]				**3.5**	**0.05**	**1**	**1.13**	**1.73**	**0.13**	**1**	**0.582**	**16.3**	**42.2**	**18**	**19**
No. of Detected / No. Sampled				**41/41**	**39/41**	**41/41**	**41/41**	**41/41**	**41/41**	**41/41**	**41/41**	**41/41**	**41/41**	**41/41**	**41/41**
Range of Reporting Limits				**--**	**0.014-0.015**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**--**
1	S.STATION01	6/15/2015	SS01-CL15	1.97	0.023	0.335	0.289	1.03	0.0587	0.329	0.0711	13.6	10.9	5.8	14.2
1	S.STATION07	6/17/2015	SS07-CL15	2.01	0.032	0.222	0.794	1.52	0.0853 J	0.543	0.106 J	11.7	9.2	3.7	18.6
2	S.STATION02	6/7/2015	SS02-CL15	2.01	0.029	0.351	0.617	1.36	0.0793 J	0.465	0.118 J	11.9	9.73	9.1	15.6
2	S.STATION05	6/17/2015	SS05-CL15	2.21	0.026	0.757	0.953	1.15	0.092 J	0.694	0.211 J	14	13.4	8	17.8
2	S.STATION08	6/17/2015	SS08-CL15	2.44	0.028	0.344	0.922	1.35	0.0823 J	0.683	0.0751 J	13.6	13	6.9	18.9
2	S.STATION62	6/21/2016	SS62-CL16	2.96	0.017	0.501	0.261	0.994	0.0502	0.844	0.375 J	15.1	22.3	13	14.6
2 & 3	S.STATION64	6/21/2016	SS64-CL16	2.72	0.015 U	1	0.61	1.24	0.0431	0.735	0.582 J	14.7	37.5	9.1	14.6
3	S.STATION03	6/16/2015	SS03-CL15	3.04	0.023	0.891	1.13	1.1	0.0641	0.614	0.164	13	14.5	9	16.4
3	S.STATION09	6/17/2015	SS09-CL15	1.81	0.029	0.209	0.779	1.2	0.0796 J	0.538	0.0678 J	13.2	9.35	5.5	17.3
3 & 8	S.STATION65	6/21/2016	SS65-CL16	3.5	0.018	0.613	0.434	1.29	0.0597	1	0.437 J	13.8	23.6	14	16.3
8	S.STATION67	6/21/2016	SS67-CL16	2.99	0.02	0.664	0.183	1.08	0.0498	0.649	0.364 J	13.3	25.1	18	15.4
8	S.STATION32	6/17/2015	SS32-CL15	1.67	0.031	0.191	0.917	1.36	0.0873 J	0.567	0.0466 J	12.6	10.1	1 J	17.8
8	S.STATION34	6/17/2015	SS34-CL15	1.65	0.026	0.295	0.718	1.1	0.0828 J	0.524	0.066 J	12.4	12.8	6.6	16.5
8	SEEPC	6/15/2015	SEEPC-CL15	2.11	0.022	0.579	0.388	0.978	0.0617	0.291	0.0748	10.8	11.9	7.7	13.6
9	S.STATION70	6/21/2016	SS70-CL16	3.09	0.017	0.973	0.237	1.5	0.13	0.53	0.453 J	16.3	42.2	11.9	15.8
9	OF03703	6/16/2015	OF03703-CL15	2.58	0.018	0.867	0.38	1.12	0.047	0.329	0.463	14.4	20	9	14.9
9	S.STATION35	6/17/2015	SS35-CL15	1.84	0.027	0.21	0.66	1.33	0.0799 J	0.448	0.0599 J	12.9	10.8	7.1	18.9
9	S.STATION36	6/16/2015	SS36-CL15	2.27	0.029	0.219	0.681	1.73	0.0858 J	0.482	0.0604 J	14.4	12.4	6.8	18.8
9	S.STATION37	6/17/2015	SS37-CL15	2.36	0.028	0.419	0.44	1.2	0.0862 J	0.405	0.117 J	13.9	16.8	9.3	17.9
9	S.STATION53	6/16/2015	SS53-CL15	2.18	0.03	0.209	0.596	1.48	0.0913	0.435	0.0959	12.7	10.1	5.5	18.1
9 & 10	S.STATION74	6/21/2016	SS74-CL16	2.33	0.034	0.279	0.227	0.964	0.0794	0.45	0.137 J	14	17.8	11.7	15.1
10	S.STATION73	6/21/2016	SS73-CL16	2.84	0.041	0.41	0.155	1.08	0.0689	0.736	0.508 J	15.8	25.2	11.4	17.2
10	S.STATION38	6/16/2015	SS38-CL15	2.26	0.026	0.245	0.444	1.38	0.0789	0.402	0.0735	14.8	12.3	5.2	19
10	S.STATION40	6/16/2015	SS40-CL15	1.71	0.029	0.204	1.03	1.32	0.0787	0.584	0.0538	12.7	11.3	6.9	18.7
10	S.STATION56	6/17/2015	SS56-CL15	1.87	0.026	0.22	0.363	1.11	0.0651 J	0.341	0.0615 J	12.9	11.8	5.6	17.5
10	SEEPD	6/15/2015	SEEPD-CL15	2.91	0.023	0.336	0.57	1.38	0.0727	0.405	0.129	12.9	13.6	5.1	16.1
10 & 11	S.STATION75	6/21/2016	SS75-CL16	2.49	0.028	0.237	0.242	1.1	0.0687	0.321	0.0756 J	13	16.4	11.9	14.9
11	S.STATION43	6/17/2015	SS43-CL15	1.81	0.024	0.205	0.396	1.24	0.0687 J	0.372	0.0598 J	14.6	10.5	6.9	17.7
11	SEEPE	6/15/2015	SEEPE-CL15	2.48	0.023	0.264	0.677	1.29	0.06	0.364	0.0907	14.5	14.1	7.9	17
12	S.STATION46	6/17/2015	SS46-CL15	1.67	0.03	0.169	0.375	1.4	0.0724 J	0.362	0.0474 J	15	11.2	6	19
12	SEEPF	6/15/2015	SEEPF-CL15	2.64	0.025	0.256	0.471	1.52	0.0651	0.42	0.181	13.8	15.4	5.6	17.8
13	SS-03701	6/16/2015	OF03701-CL15	2.3	0.021	0.469	0.367	1.12	0.0672	0.299	0.366	12.4	28.9	9	14.6
13	S.STATION49	6/16/2015	SS49-CL15	2.86	0.022	0.304	0.347	1.09	0.0749	0.315	0.35	12.2	21.1	11.3	15.4
13	SEEPG	6/15/2015	SEEPG-CL15	2.4	0.05	0.214	0.493	1.37	0.0846	0.385	0.129	13.8	11.6	5.7	15.7
S. 13	S.STATION76	6/21/2016	SS76-CL16	2.88	0.038	0.24	0.208	1.21	0.0742	0.315	0.095 J	15.8	21	13.6	16.9
S. 13	S.STATION77A	6/21/2016	SS77A-CL16	1.87	0.034	0.197	0.205	1.05	0.0706	0.288	0.0955 J	11.6	14.5	9.6	14.7
N. 13	S.STATION78	6/21/2016	SS78-CL16	2.26	0.023	0.259	0.248	1.11	0.0831	0.628	0.292 J	15.1	19	10.4	18.9
N. 13	S.STATION79A	6/21/2016	SS79A-CL16	2.03	0.039	0.201	0.182	1.21	0.0851	0.33	0.138 J	14.4	14.8	8	18.6
14	S.STATION57	6/21/2016	SS57-CL16	2.84 J	0.014 U	0.398	0.163	0.759	0.0431	0.531 J	0.153 J	10.3	14.8	12.3	12
14	S.STATION58	6/21/2016	SS58-CL16	1.66	0.024	0.203	0.158	1.03	0.0474	0.27	0.139 J	9.6	8.58	3.7	11.8
14	S.STATION59	6/21/2016	SS59-CL16	1.68	0.025	0.202	0.307	0.998	0.0582	0.277	0.0371 J	10.9	9.31	6.6	13.4

Notes:
Tissue results are reported in wet weight.
[a] Only detected concentrations are included
ID - identification
J - The result is an estimated concentration.
µg/g - microgram per gram
mg/kg - milligram per kilogram
ng/g - nanogram per gram
No. - number
U - The compound was analyzed for, but was not detected ("nondetect") at or above the method reporting limit/method detection limit

Table H-3. Metals Analysis Results for Area 8 Sediment

Transect	Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	Arsenic (mg/kg)	Cadmium (mg/kg)	Total Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)	Mercury (mg/kg)
Mean [a]						**2.32**	**1.734**	**30.2**	**17.19**	**10.64**	**16.1**	**0.806**	**39.3**	**0.165**
Median [a]						**2.22**	**0.787**	**30.2**	**8.58**	**5.01**	**16.1**	**0.281**	**30.8**	**0.067**
Minimum [a]						**0.42**	**0.152**	**2.32**	**3.81**	**1.71**	**2.37**	**0.048**	**12.5**	**0.006**
Maximum [a]						**6.47**	**11.4**	**84.8**	**439**	**185**	**40.8**	**17**	**396**	**2.42**
No. of Detected / No. Sampled						**81/81**	**81/81**	**81/81**	**81/81**	**81/81**	**81/81**	**81/81**	**81/81**	**81/81**
1	S.STATION01	6/15/2015	SS01-SD15	0-10	N	1.92	0.343 J	18.1 J	8.51 J	4.13	16.5	0.136	31.8 J	0.011 J
1	S.STATION04	6/15/2015	SS04-SD15	0-10	N	2.03	0.395 J	22 J	7.75 J	5.59	15.6	0.714	28.6 J	0.032
1	S.STATION07	6/17/2015	SS07-SD15	0-10	N	3.33	0.41	19 J	14.8 J	4.43	17.5	0.059	30.6	0.038
1	S.STATION07	6/17/2015	SS07-SD15B	10-24	N	2.87	0.309	19.6 J	7.41 J	4.18	16.3	0.061	26.3	0.037
1	S.STATION60	6/21/2016	SS60-SD16	0-10	N	3.22	0.325	18	8.11	5.46 J	15.9	0.07	30.5	0.029
1	S.STATION60	6/21/2016	SS-FD1	0-10	FD	3.18	0.302 J	22.3 J	7.86	5.62	16.5	0.074 J	29	0.048
1	S.STATION55	6/16/2015	SS55-SD15	0-10	N	2.12	0.152 J	8.03 J	8.17 J	3.23	23.6	0.048	18.2 J	0.025
1	S.STATION10	6/17/2015	SS10-SD15	0-10	N	3.43	0.284	11.2	7.92	4.73	9.31	0.068	21.4	0.033
1 & 2	S.STATION61	6/21/2016	SS61-SD16	0-10	N	1.28	0.306	13.4	10.9	14.4 J	13.7	0.072	40.2	0.011 J
2	S.STATION62	6/21/2016	SS62-SD16	0-10	N	1.57	0.484	21.1	12.5	6.18 J	19.8	0.124	44.5	0.015 J
2	S.STATION63	6/21/2016	SS63-SD16	0-10	N	1.52	0.385	19.8	11.4	4.73 J	19.1	0.116	37.9	0.111
2	S.STATION02	6/17/2015	SS02-SD15	0-10	N	2.56	1.61	29.9 J	10.6 J	3.79	12.3	0.283	24.7	0.05
2	S.STATION05	6/17/2015	SS05-SD15	0-10	N	2.53	3	34.7 J	8.57 J	4.6	20.1	1.12	31.6	0.033
2	S.STATION08	6/17/2015	SS08-SD15	0-10	N	2.18	2.84	45 J	8.92 J	4.62	17.4	0.857	30.2	1.67
2	S.STATION08	6/17/2015	SS08-SD15B	10-24	N	2.09	3.02	35 J	7.67 J	4.94	17.1	0.829	29.6	0.038
2	S.STATION30	6/17/2015	SS30-SD15	0-10	N	2.12	0.289	19.9 J	7.73 J	5.76	21.1	0.068	25.1	0.031
2	S.STATION11	6/16/2015	SS11-SD15	0-10	N	3.37	0.258 J	12.5 J	6.64 J	4	12.4	0.072	21.5 J	0.034
2 & 3	S.STATION64	6/21/2016	SS64-SD16	0-10	N	1.22	2.71	18.9	11.5	5.67 J	18.8	0.208	63.8	0.082
3	S.STATION50	6/15/2015	SS50-SD15	0-10	N	1.84	8.84 J	38 J	19.4 J	7.2	27.9	0.469	53.5 J	0.308
3	S.STATION51	6/15/2015	SS51-SD15	0-10	N	1.91	10.2 J	84.8 J	61.6 J	47.8	40.8	0.099	113 J	2.42
3	S.STATION03	6/16/2015	SS03-SD15	0-10	N	6.47	11.4	34.1 J	8.16	4.01 J	15.5	0.433	31	0.074
3	S.STATION06	6/16/2015	SS06-SD15	0-10	N	2.27	5.85 J	49.9 J	9.31 J	5.36	17.5	0.552	31.8 J	0.051
3	S.STATION06	6/16/2015	SS06-SD15B	10-24	N	1.62	4.86 J	46.1 J	6.73 J	3.95	13.9	0.437	25.6 J	0.044
3	S.STATION09	6/17/2015	SS09-SD15	0-10	N	2.73	2.36	69.5 J	8.64 J	4.86	17.5	0.305	35.9	0.045
3	S.STATION09	6/17/2015	SS09-SD15B	10-24	N	2.8	2.29	64.2 J	8.58 J	4.96	17.2	0.287	32.7	0.066
3	S.STATION31	6/16/2015	SS31-SD15	0-10	N	3.27	0.468 J	37.1 J	7.14 J	4.13	12.5	0.109	23.5 J	0.028
3	S.STATION12	6/16/2015	SS12-SD15	0-10	N	3.4	0.339 J	22.4 J	6.81 J	4.27	11.3	0.075	22.9 J	0.037
3 & 8	S.STATION65	6/21/2016	SS65-SD16	0-10	N	1.48	2.06	20.3	12.1	7.66 J	16.8	0.099	39.7	0.506
8	S.STATION66	6/21/2016	SS66-SD16	0-10	N	0.78	0.876	6.62	7.98	3.66 J	10.6	0.12	19.1	0.06
8	S.STATION67	6/21/2016	SS67-SD16	0-10	N	3.74	1.3	16.8	14.2	6.41 J	11.5	0.106	46.1	0.182
8	SEEPC	6/15/2015	SEEPC-SD15	0-10	N	1.66	6.8 J	34.1 J	12.6 J	4.15	14.8	0.299	32.5 J	0.133
8	S.STATION34	6/17/2015	SS34-SD15	0-10	N	2.22	3.38	53.4 J	14.2 J	5.04 J	21.1	0.274	32.9	0.132
8	S.STATION34	6/17/2015	DUP3-SD15	0-10	FD	1.74	3.82	47.7 J	8.36 J	4.22	14.9	0.28	27.2	0.116
8	S.STATION34	6/17/2015	SS34-SD15B	10-24	N	1.54	3.77	51.1 J	7.4 J	4.68	13.9	0.281	26.4	0.17 J
8	S.STATION34	6/17/2015	DUP4-SD15B	10-24	FD	1.47	3.48	43.8 J	6.33 J	3.79	12.6	0.245	23.4	0.083 J
8	S.STATION32	6/17/2015	SS32-SD15	0-10	N	3.02	0.791	40.8 J	8.2 J	5.24	17.1	0.148	30.3	0.077
8	S.STATION54	6/16/2015	SS54-SD15	0-10	N	4.02	0.709	36.7 J	13.3	6.53 J	19.4	0.136	38.5	0.057
8 & 9	S.STATION68	6/21/2016	SS68-SD16	0-10	N	0.42 J	1.15	2.32	3.81	1.71 J	2.37	0.355	12.5	0.044
8 & 9	S.STATION69	6/21/2016	SS69-SD16	0-10	N	0.73	1.17	5.43	4.61	2.05 J	7.07	0.076	17.1	0.055
9	S.STATION70	6/21/2016	SS70-SD16	0-10	N	1.57	3.18 J	27.5 J	77.5	50.2	19.5	7.75 J	148	0.491
9	S.STATION71	6/21/2016	SS71-SD16	0-10	N	1.49	1.22 J	45.3 J	439	19.7	23.4	2.63 J	46.7	0.113
9	OF03703	6/16/2015	OF03703-SD15	0-10	N	2.01	3.33	49.2 J	13.9	6.61 J	22	1.47	44.1	0.627
9	OF03703	6/16/2015	DUP5-SD15	0-10	FD	1.93	3.93	46.4 J	12.2	5.77 J	19.6	1.98	37.9	0.422
9	S.STATION37	6/17/2015	SS37-SD15	0-10	N	1.67	3.15	29.1 J	8.76 J	4.42	11.8	0.414	26.6	0.111
9	S.STATION36	6/16/2015	SS36-SD15	0-10	N	1.31	1.15	26 J	5.24	2.85 J	8.94	0.151	17.2	0.083
9	S.STATION36	6/16/2015	SS36-SD15B	10-24	N	1.68	1.7	38.5 J	6	3.1 J	12.4	0.261	23.2	0.073
9	S.STATION53	6/16/2015	SS53-SD15	0-10	N	2.31	0.44	23.6 J	5.68	4.12 J	11.4	0.1	20.9	0.027
9 & 10	S.STATION72	6/21/2016	SS72-SD16	0-10	N	1.44	1.18 J	26.5 J	48.8	67.7	19.6	17 J	54.2	0.163
9 & 10	S.STATION74	6/21/2016	SS74-SD16	0-10	N	1.57	1.99 J	36 J	10.6	5.9	16.9	2.2 J	35.3	0.176

Table H-3. Metals Analysis Results for Area 8 Sediment

Transect	Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	Arsenic (mg/kg)	Cadmium (mg/kg)	Total Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)	Mercury (mg/kg)
					Mean [a]	**2.32**	**1.734**	**30.2**	**17.19**	**10.64**	**16.1**	**0.806**	**39.3**	**0.165**
					Median [a]	**2.22**	**0.787**	**30.2**	**8.58**	**5.01**	**16.1**	**0.281**	**30.8**	**0.067**
					Minimum [a]	**0.42**	**0.152**	**2.32**	**3.81**	**1.71**	**2.37**	**0.048**	**12.5**	**0.006**
					Maximum [a]	**6.47**	**11.4**	**84.8**	**439**	**185**	**40.8**	**17**	**396**	**2.42**
					No. of Detected / No. Sampled	**81/81**	**81/81**	**81/81**	**81/81**	**81/81**	**81/81**	**81/81**	**81/81**	**81/81**
10	S.STATION73	6/21/2016	SS73-SD16	0-10	N	2.26	0.9 J	19.9 J	19.1	8.77	12.7	1.91 J	39.7	0.099
10	SEEPD	6/15/2015	SEEPD-SD15	0-10	N	0.9	1.08 J	8.73 J	4.2 J	2.64	5.17	0.398	13.2 J	0.165
10	S.STATION40	6/16/2015	SS40-SD15	0-10	N	1.41	3.82	41.1 J	9.85	5.27 J	14.9	1.41	29.8	0.068
10	S.STATION40	6/16/2015	SS40-SD15B	10-24	N	1.44	1.16	30.2 J	9.22	4.55 J	14.6	1.16	34.1	0.767
10	S.STATION38	6/16/2015	SS38-SD15	0-10	N	1.48	0.487	25.6 J	6.58	3.22 J	13.4	0.238	19.6	0.066
10	S.STATION39	6/16/2015	SS39-SD15	0-10	N	2.49	0.524	33.2 J	6.05	7.67 J	13.7	0.113	23.8	0.034
10	S.STATION52	6/16/2015	SS52-SD15	0-10	N	2.95	0.437	33.6 J	6.82	10.2 J	15.1	0.116	26.7	0.037
10 & 11	S.STATION75	6/21/2016	SS75-SD16	0-10	N	2.85	1.55 J	34.1 J	13.4	6.83	18.2	0.889 J	47.7	0.205
11	SEEPE	6/15/2015	SEEPE-SD15	0-10	N	1.63	0.715 J	30.9 J	9.71 J	3.99	15.4	0.446	27.2 J	0.107
11	S.STATION43	6/17/2015	SS43-SD15	0-10	N	2.58	0.814	38.4 J	8.58 J	4.38	16.7	0.342	32.4	0.054
11	S.STATION43	6/17/2015	SS43-SD15B	10-24	N	1.95	0.782	30 J	7.25 J	3.3	17.2	0.295	24.8	0.067
11	S.STATION41	6/16/2015	SS41-SD15	0-10	N	3.27	0.533	34.4 J	8.5	4.98 J	16.2	0.117	30	0.045
11	S.STATION42	6/16/2015	SS42-SD15	0-10	N	3.25	0.403	28.3 J	6.97	4.78 J	15.1	0.091	27.2	0.043
12	SEEPF	6/15/2015	SEEPF-SD15	0-10	N	2.22	0.754 J	19.8 J	6.68 J	4.9	10.4	0.228	28.8 J	0.136
12	S.STATION46	6/16/2015	SS46-SD15	0-10	N	2.53	0.677	39.1 J	8.05	5.11 J	15.7	0.345	29.4	0.095
12	S.STATION46	6/16/2015	SS46-SD15B	10-24	N	2.5	0.88	34 J	7.64	7.82 J	14.5	0.368	34.3	0.054
12	S.STATION44	6/16/2015	SS44-SD15	0-10	N	1.94	0.38	21.3 J	4.74	3.15 J	10.3	0.102	17.7	0.034
12	S.STATION45	6/16/2015	SS45-SD15	0-10	N	3.37	0.339	30.8 J	6.48	4.45 J	16.9	0.079	28	0.034
13	SS-03701	6/16/2015	OF03701-SD15	0-10	N	2.47	1.97	30.2 J	39.8	185 J	24.2	5.99	396	0.224
13	S.STATION49	6/16/2015	SS49-SD15	0-10	N	1.67	0.524	20.3 J	10.2 J	7.86	12.5	0.999	36.5	0.151
13	SEEPG	6/15/2015	SEEPG-SD15	0-10	N	2.37	0.585 J	26.6 J	11 J	8.32	15.4	0.616	40.8 J	0.144
13	SEEPG	6/15/2015	SEEPG-SD15B	10-24	N	2.09	0.487 J	31.6 J	10.6 J	12.8	17.4	0.423	43.8 J	0.099
13	S.STATION48	6/15/2015	SS48-SD15	0-10	N	3.56	0.771 J	35.8 J	23.1 J	8.83	17.4	0.527	45.2 J	0.608
13	S.STATION47	6/16/2015	SS47-SD15	0-10	N	3.19	0.375	20.3 J	6.67	4.33 J	14.4	0.081	25.5	0.026
S. 13	S.STATION76	6/21/2016	SS76-SD16	0-10	N	3.12	0.765 J	40.5 J	14.7	41.8	20.6	0.479 J	55.2	0.112
S. 13	S.STATION77	6/21/2016	SS77-SD16	0-10	N	3.31	0.681 J	32.5 J	9.31	6.99	19	0.218 J	37.5	0.112
N. 13	S.STATION78	6/21/2016	SS78-SD16	0-10	N	2.25	1.14 J	31.8 J	14.6 J	12.5 J	18.4	1.33 J	49	0.107
N. 13	S.STATION78	6/21/2016	SS-FD2	0-10	FD	1.46	0.285 J	18.2 J	8.68 J	32.5 J	12.6	0.622 J	31.2	0.121
N. 13	S.STATION79	6/21/2016	SS79-SD16	0-10	N	3.71	0.655 J	34.9 J	11	13.4	20.4	0.356 J	46.3	0.066
14	S.STATION57	6/21/2016	SS57-SD16	0-10	N	3.16	0.33	12.9	7.04	4.61 J	10.8	0.071	42	0.006 J
14	S.STATION58	6/21/2016	SS58-SD16	0-10	N	2.37	0.259	21.6	11.5	6.15 J	17.9	0.067	36.1	0.018 J
14	S.STATION59	6/21/2016	SS59-SD16	0-10	N	2.44	0.233	12.9	7.93	5.1 J	12.6	0.056	25.8	0.046

Notes:
Sediment results are reported in dry weight.
[a] Only detected concentrations are included
cm - centimeter
FD - field duplicate
ID - identification
J - The result is an estimated concentration
mg/kg - milligram per kilogram
N - normal environmental sample
No. - number

Table H-4. AVS/SEM Analysis Results for Area 8 Sediment

Sampling Station ID	Sample Date	Sample No.	Sample Type	Acid Volatile Sulfides (µmol/g)	Cadmium (µmol/g)	Copper (µmol/g)	Lead (µmol/g)	Nickel (µmol/g)	Zinc (µmol/g)	Mercury (µmol/g)
S.STATION06	6/16/2015	SS06-SD15B	N	3.9	0.04937 J	0.0261	0.038	0.0325 J	0.211	5.80E-05 U
S.STATION07	6/17/2015	SS07-SD15	N	3.65	0.00315 J	0.0271	0.0175 J	0.0278	0.207	6.30E-05 U
S.STATION08	6/17/2015	SS08-SD15	N	4.77	0.02675	0.0318	0.0181 J	0.0365	0.229	6.10E-05 U
S.STATION08	6/17/2015	SS08-SD15B	N	7.5	0.02361	0.0184 J	0.0154 J	0.0338	0.204	5.30E-05 U
S.STATION09	6/17/2015	SS09-SD15	N	7.9	0.0165	0.0148 J	0.0153 J	0.0338	0.239	5.10E-05 U
S.STATION09	6/17/2015	SS09-SD15B	N	8.9	0.01694	0.027	0.0188 J	0.0384	0.246	6.00E-05 U
S.STATION34	6/17/2015	SS34-SD15	N	4.88	0.04421	0.0417	0.0245 J	0.0402	0.24	6.20E-05 U
S.STATION34	6/17/2015	SS34-SD15B	N	0.85	0.03604 J	0.0379	0.0175	0.0398 J	0.199	6.10E-05 U
S.STATION34	6/17/2015	DUP3-SD15	FD	3.95	0.03639	0.035	0.018 J	0.0318	0.184	5.50E-05 U
S.STATION34	6/17/2015	DUP4-SD15B	FD	0.55	0.03042 J	0.0375	0.0181	0.0314 J	0.172	6.10E-05 U
S.STATION36	6/16/2015	SS36-SD15	N	7.7	0.01683 J	0.0309	0.0148	0.0442 J	0.221	5.80E-05 U
S.STATION36	6/16/2015	SS36-SD15B	N	5.98	0.01822 J	0.0272	0.0153	0.0411 J	0.226	5.90E-05 U
S.STATION40	6/16/2015	SS40-SD15B	N	9.1	0.01199 J	0.0381	0.029	0.0605 J	0.388	6.20E-05 U
S.STATION40	6/16/2015	SS40-SD15	N	9.3	0.01588 J	0.051	0.0235	0.0738 J	0.41	6.10E-05 U
S.STATION43	6/17/2015	SS43-SD15	N	2.21	0.00801 J	0.0345	0.0178	0.0401 J	0.211	6.30E-05 U
S.STATION46	6/16/2015	SS46-SD15	N	2.13	0.0073 J	0.036	0.021	0.0361 J	0.239	6.10E-05 U
S.STATION48	6/15/2015	SS48-SD15	N	7.06	0.00625	0.043	0.0269	0.0415	0.376	6.50E-05 U
S.STATION57	6/21/2016	SS57-SD16	N	0.017 U	0.00552 U	0.0427 J	0.0276 U	0.0249 J	0.284	6.60E-05 U
S.STATION58	6/21/2016	SS58-SD16	N	2.33	0.00169 J	0.0394 J	0.0209 J	0.0359	0.233	5.40E-05 U
S.STATION59	6/21/2016	SS59-SD16	N	0.09	0.00213 J	0.0437 J	0.0205 J	0.0229	0.22	5.40E-05 U
S.STATION62	6/21/2016	SS62-SD16	N	0.013 U	0.00305 J	0.0794	0.0227	0.0297	0.297	5.20E-05 U
S.STATION64	6/21/2016	SS64-SD16	N	0.013 U	0.01754	0.0874	0.0285	0.137	0.846	2.60E-05 J
S.STATION65	6/21/2016	SS65-SD16	N	0.045	0.01271	0.51	0.0542	0.0556	0.37	1.60E-03
S.STATION67	6/21/2016	SS67-SD16	N	0.041	0.00906	0.106	0.0316	0.055	0.509	6.10E-05 U
S.STATION70	6/21/2016	SS70-SD16	N	0.016 J	0.02552 J	0.975	0.221	0.0783	1.71	3.00E-05 J
S.STATION73	6/21/2016	SS73-SD16	N	0.012 U	0.00768 J	0.1	0.0459	0.0485	0.33	5.10E-05 J
S.STATION74	6/21/2016	SS74-SD16	N	2.77	0.01725 J	0.0492	0.0328	0.0466	0.34	5.50E-05 U
S.STATION75	6/21/2016	SS75-SD16	N	2.54	0.01619 J	0.0701	0.0312	0.0709	0.38	5.50E-05 U
S.STATION76	6/21/2016	SS76-SD16	N	9.7	0.00724 J	0.0685	0.0488	0.072	0.614	5.60E-05 U
S.STATION77	6/21/2016	SS77-SD16	N	1.27	0.00547 J	0.0449	0.0273	0.0373	0.27	6.10E-05 U
S.STATION78	6/21/2016	SS78-SD16	N	1.22	0.00438 J	0.0906	0.0548	0.0683	0.515	5.30E-05 U
S.STATION79	6/21/2016	SS79-SD16	N	2.38	0.00651 J	0.0481	0.0345	0.0451	0.391	6.00E-05 U
S.STATION78	6/21/2016	SS-FD2	FD	1.12	0.00567 J	0.0888	0.0742	0.057	0.581	5.40E-05 U

Notes:
AVS - acid volatile sulfides
FD - field duplicate
ID - identification
J - The result is an estimated concentration.
µmol/g - micromole per gram
N - normal environmental sample
No. - number
SEM - simultaneously extracted metals
U - The compound was analyzed for, but was not detected ("nondetect") at or above the method reporting limit/method detection limit

Table H-5. Total Organic Carbon, Total Solids, and Grain Size Analysis Results for Area 8 Sediment

Sampling Station ID	Sample Date	Sample No.	Sample Type	Total Organic Carbon (%)	Total Solids (%)	Gravel >2 mm (%)	Sand, Very Coarse 1-2 mm (%)	Sand, Coarse 0.5-1 mm (%)	Sand, Medium 0.25-0.5 mm (%)	Sand, Fine 0.125-0.25 mm (%)	Sand, Very Fine 0.0625-0.125 mm (%)	Silt 0.0039-0.0625 mm (%)	Clay < 0.0039 mm (%)
OF03701	6/16/2015	OF03701-SD15	N	0.723	72.3	59.39	13.12	12.44	7.71	2.52	1.16	6.39	4
OF03703	6/16/2015	OF03703-SD15	N	0.4	81.8	31.23	16.98	25.01	16.79	4.85	1.63	5.42	2.38
OF03703	6/16/2015	DUP5-SD15	FD	0.398	82.2	34.29	16.13	22.64	16.56	4.86	1.77	5.23	2.3
S.STATION01	6/15/2015	SS01-SD15	N	NA	79.8	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION02	6/17/2015	SS02-SD15	N	NA	76.5	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION03	6/16/2015	SS03-SD15	N	0.221	78.4	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION04	6/15/2015	SS04-SD15	N	NA	73.8	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION05	6/17/2015	SS05-SD15	N	NA	80.8	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION06	6/16/2015	SS06-SD15	N	NA	81.3	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION06	6/16/2015	SS06-SD15B	N	0.333	81.9	12.69	7.36	13.99	38.7	9.73	1.4	3.65	2.16
S.STATION07	6/17/2015	SS07-SD15	N	NA	74.9	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION07	6/17/2015	SS07-SD15B	N	0.36	73.5	19.7	15.6	13.5	30.53	13.95	1.8	4.14	2.73
S.STATION08	6/17/2015	SS08-SD15	N	NA	77.6	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION08	6/17/2015	SS08-SD15B	N	0.362	73.2	47.98	5.7	9.67	23.3	16.01	1.22	3.31	1.88
S.STATION09	6/17/2015	SS09-SD15	N	NA	86	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION09	6/17/2015	SS09-SD15B	N	0.424	76.2	23.64	6.74	17.35	29.54	11.26	1.89	6.65	2.76
S.STATION10	6/17/2015	SS10-SD15	N	NA	69	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION11	6/16/2015	SS11-SD15	N	NA	77.1	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION12	6/16/2015	SS12-SD15	N	NA	72.6	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION30	6/17/2015	SS30-SD15	N	0.439	76.7	36.94	9.49	11.89	18.75	11.18	4.11	7.86	2.23
S.STATION31	6/16/2015	SS31-SD15	N	0.469	76.1	37.83	11.11	8.74	21.82	9.01	2.47	5.38	2.36
S.STATION32	6/17/2015	SS32-SD15	N	0.51	72.3	8.42	4.41	10.8	36.22	17.62	9.11	14.58	3.61
S.STATION34	6/17/2015	SS34-SD15	N	0.433	75.2	22.06	13.78	23.54	22.7	5.97	1.99	6.81	2.33
S.STATION34	6/17/2015	SS34-SD15B	N	0.273	77.6	47.24	14.94	17.3	16.26	3.67	1.06	2.48	1.49
S.STATION34	6/17/2015	DUP3-SD15	FD	0.392	80.5	32.47	12.52	20.25	18.72	4.69	1.6	5.12	2.09
S.STATION34	6/17/2015	DUP4-SD15B	FD	0.268	78.2	40.23	16.1	19.07	18.23	4.08	1.16	2.7	1.59
S.STATION36	6/16/2015	SS36-SD15	N	0.405	80.3	11.38	9.55	22.87	34.02	8.54	2.52	5.42	2.71
S.STATION36	6/16/2015	SS36-SD15B	N	0.235	78.8	18.71	14.37	24.09	31.7	6.11	1.14	2.21	1.41
S.STATION37	6/17/2015	SS37-SD15	N	0.464	72.2	22.57	18.89	28.87	21.45	4.62	1.4	4.21	2.21
S.STATION38	6/16/2015	SS38-SD15	N	0.254	77.8	24.72	11.9	21.94	30	5.6	1.37	2.46	1.77
S.STATION39	6/16/2015	SS39-SD15	N	0.451	77.4	9.9	4.9	10.55	48.14	14.71	2.63	4.09	2.04
S.STATION40	6/16/2015	SS40-SD15B	N	0.274	74.7	23.13	22.48	29.22	17.63	3.58	0.98	2.31	1.92
S.STATION40	6/16/2015	SS40-SD15	N	0.257	73.7	30.97	20.44	27.12	15.64	3.4	1.03	2.41	1.98
S.STATION41	6/16/2015	SS41-SD15	N	0.382	79.6	15.63	5.67	7.89	38.4	19.38	4.33	5.39	2.41
S.STATION42	6/16/2015	SS42-SD15	N	0.334	77.4	11.22	5.8	7.03	40.87	19.26	4.63	6.75	2.51
S.STATION43	6/17/2015	SS43-SD15B	N	0.242	81	41.92	10.69	14.33	26.39	6.01	1.16	1.13	1.01
S.STATION43	6/17/2015	SS43-SD15	N	0.36	74.7	20.99	11.38	19.9	31.69	8.32	3.17	4.79	2.21
S.STATION44	6/16/2015	SS44-SD15	N	0.259	77	8.75	5.87	10.37	41.32	21.49	3.87	3.98	1.93
S.STATION45	6/16/2015	SS45-SD15	N	0.254	77.3	13.45	3.49	5.96	38.03	27.48	5.5	4.54	2.06
S.STATION46	6/16/2015	SS46-SD15	N	0.321	77.3	16.8	5.77	9.88	38.18	15.96	4.11	4.85	2.05
S.STATION46	6/16/2015	SS46-SD15B	N	0.293	77.8	39.45	7.35	8.97	29.09	11.01	2.52	3.02	1.61
S.STATION47	6/16/2015	SS47-SD15	N	0.353	76.5	18.25	6.72	7.83	30.37	19.39	6.04	7.26	2.56
S.STATION48	6/15/2015	SS48-SD15	N	0.399	72.1	4.8	4.05	13.5	45.93	14.07	4.23	6.76	3.04
S.STATION49	6/16/2015	SS49-SD15	N	0.411	76	NA	NA	NA	NA	NA	NA	NA	NA
S.STATION50	6/15/2015	SS50-SD15	N	0.245	84.7	30.7	25.8	24.02	9.92	2.37	0.61	4.06	2.95
S.STATION51	6/15/2015	SS51-SD15	N	0.239	91.4	37.5	19.59	16.18	9.79	3.06	0.92	3.1	2.25
S.STATION52	6/16/2015	SS52-SD15	N	0.269	79	11.32	4.86	10.65	48.83	14.13	3.12	4.89	2.16
S.STATION53	6/16/2015	SS53-SD15	N	0.435	76.9	49.87	5.31	6.46	22.87	9.31	2.91	6.23	2.28
S.STATION54	6/16/2015	SS54-SD15	N	0.757	63.4	10.34	3.88	5.08	23.72	15.7	8.98	27.86	6.03
S.STATION55	6/16/2015	SS55-SD15	N	NA	78.7	NA	NA	NA	NA	NA	NA	NA	NA
SEEPC	6/15/2015	SEEPC-SD15	N	0.402	73.9	NA	NA	NA	NA	NA	NA	NA	NA
SEEPD	6/15/2015	SEEPD-SD15	N	0.412	74.4	NA	NA	NA	NA	NA	NA	NA	NA
SEEPE	6/15/2015	SEEPE-SD15	N	0.313	74.8	29.38	19.05	26.71	18.32	3.35	0.84	1.78	1.49
SEEPF	6/15/2015	SEEPF-SD15	N	0.411	73.2	27.24	18.51	22.48	22.41	4.28	1.07	2.38	2.11
SEEPG	6/15/2015	SEEPG-SD15	N	0.429	74	11.17	11.11	24.64	29.67	7.02	2.53	6.85	3.63
SEEPG	6/15/2015	SEEPG-SD15B	N	0.201	80.8	37.77	11.4	20.55	22.83	4.37	1.23	2.46	1.88

Notes:
Total organic carbon and grain size analytical method was American Society for Testing and Materials D422 modified for the Puget Sound Estuary Program.
FD - field duplicate
ID - identification
N - normal environmental sample
NA - not analyzed
No. - number
mm - millimeter

Table H-6. Metals Analysis Results for Area 8 Seeps and Outfalls

Sampling Station ID	Sample Date	Sample No.	Sample Type	Dissolved Arsenic (µg/L)	Dissolved Cadmium (µg/L)	Dissolved Chromium, Total (µg/L)	Dissolved Copper (µg/L)	Dissolved Lead (µg/L)	Dissolved Nickel (µg/L)	Dissolved Silver (µg/L)	Dissolved Zinc (µg/L)	Dissolved Mercury (µg/L)
OF03701	6/16/2015	OF03701-OF15	N	0.84 J	6.91	8.25	5.39	0.355	1.13	0.266 J	54.9	0.00427
OF03701	6/16/2015	DUP6-OF15	FD	1.6 J	5.7	6.77	5.06	0.344	1.16	0.58 J	40.2	0.00534
SEEPA	6/15/2015	SEEPA-SW15	N	1.26	45.7	9.68	1.88	0.047	1.65	0.057	1.63	0.00849
SEEPB	6/15/2015	SEEPB-SW15	N	1.44	0.321	2.61	1.13	0.026	0.93	0.021	1.24	0.001
SEEPC	6/15/2015	SEEPC-SW15	N	1.55	2.41	1.21	0.687	0.089	1.81	0.016 J	1.43	0.00866
SEEPD	6/15/2015	SEEPD-SW15	N	0.71	0.003 U	0.42	0.132 U	0.01 U	0.53	0.003 J	1.38	0.00589
SEEPE	6/15/2015	SEEPE-SW15	N	1.76	0.015 J	0.2 J	0.345	0.027	0.53	0.003 J	0.54 U	0.0141
SEEPF	6/16/2015	SEEPF-SW15	N	2.51	0.027 J	0.34 J	0.492	0.028 J	0.78	0.011 J	1.49 J	0.00205 J
SEEPF	6/16/2015	DUP2-SW15	FD	1.96	0.038 J	0.24 J	0.44	0.023 J	0.53	0.013 J	0.77 J	0.00256
SEEPG	6/17/2015	SEEPG-SW15	N	2.28	0.044	0.25	0.438	0.017 J	0.96	0.008 J	1.24	0.00129

Notes:
FD - field duplicate
ID - Identification
J - The result is an estimated concentration
µg/L - microgram per liter
N - normal environmental sample
No. - number
U - The compound was analyzed for, but was not detected ("nondetect") at or above the method reporting limit/method detection limit

Table H-7. Metals Analysis Results for Reference Area Marine Water

Sampling Station ID	Sample Date	Sample No.	Sample Type	Dissolved Arsenic (µg/L)	Dissolved Cadmium (µg/L)	Dissolved Chromium, Total (µg/L)	Dissolved Copper (µg/L)	Dissolved Lead (µg/L)	Dissolved Nickel (µg/L)	Dissolved Silver (µg/L)	Dissolved Zinc (µg/L)	Dissolved Mercury (µg/L)
			Mean [a]	**1.08**	**0.047**	**0.14**	**0.604**	**0.018**	**0.77**	**0.006**	**1**	**0.00032**
			Median [a]	**1.17**	**0.056**	**0.16**	**0.537**	**0.016**	**0.78**	**0.005**	**0.9**	**0.00033**
			Minimum [a]	**0.49**	**0.014**	**0.07**	**0.365**	**0.014**	**0.51**	**0.003**	**0.6**	**0.00021**
			Maximum [a]	**1.54**	**0.066**	**0.23**	**0.901**	**0.031**	**0.93**	**0.011**	**1.4**	**0.00043**
			No. of Detected / No. Sampled	**9/9**	**8/9**	**9/9**	**9/9**	**7/9**	**9/9**	**6/9**	**5/9**	**9/9**
			Range of Reporting Limits	**--**	**0.009**	**--**	**--**	**0.01**	**--**	**0.005**	**0.2 - 0.4**	**--**
PP01	6/3/2015	PP1-MW15	N	1.54	0.064	0.11 J	0.901	0.031	0.75	0.011 J	1.4	0.00043 J
PP03	6/3/2015	PP3-MW15	N	1.21	0.066	0.16 J	0.537	0.021	0.71	0.006 J	0.6	0.00033 J
PP03	6/3/2015	PPDUP-MW15	FD	1.54	0.059	0.17 J	0.822	0.014 J	0.65	0.005 J	0.9	0.00029 J
PP05	6/3/2015	PP5-MW15	N	1.17	0.052	0.16 J	0.456	0.016 J	0.86	0.005 J	1.4	0.00029 J
PP07	6/3/2015	PP7-MW15	N	1.18	0.06	0.17 J	0.534	0.015 J	0.51	0.005 J	0.7	0.00028 J
PP09	6/3/2015	PP9-MW15	N	0.65	0.014 J	0.1 J	0.386	0.01 U	0.93	0.005 U	0.3 U	0.00036 J
PP11	6/3/2015	PP11-MW15	N	1.06	0.035	0.23	0.804	0.018 J	0.78	0.003 J	0.4 U	0.00021 J
PP13	6/3/2015	PP13-MW15	N	0.91	0.026	0.12 J	0.63	0.014 J	0.84	0.005 U	0.4 U	0.00035 J
PP15	6/3/2015	PP15-MW15	N	0.49 J	0.009 U	0.07 J	0.365	0.01 U	0.93	0.005 U	0.2 U	0.00037 J

Notes:
[a] Only detected concentrations are included
FD - field duplicate
ID - identification
J - The result is an estimated concentration
N - normal environmental sample
No. - number
µg/L - microgram per liter
U - The compound was analyzed for, but was not detected ("nondetect") at or above the method reporting limit/method detection limit

Table H-8. Metals Analysis Results for Area 8 Marine Water

Sampling Station ID	Sample Date	Sample No.	Sample Type	Dissolved Arsenic (µg/L)	Dissolved Cadmium (µg/L)	Dissolved Chromium, Total (µg/L)	Dissolved Copper (µg/L)	Dissolved Lead (µg/L)	Dissolved Nickel (µg/L)	Dissolved Silver (µg/L)	Dissolved Zinc (µg/L)	Dissolved Mercury (µg/L)
			Mean [a]	**1.34**	**0.43**	**0.43**	**0.696**	**0.056**	**0.63**	**0.012**	**1.39**	**0.00168**
			Median [a]	**1.31**	**0.185**	**0.43**	**0.609**	**0.047**	**0.6**	**0.009**	**0.96**	**0.00141**
			Minimum [a]	**1.23**	**0.041**	**0.19**	**0.488**	**0.029**	**0.45**	**0.005**	**0.63**	**0.00061**
			Maximum [a]	**1.58**	**1.57**	**0.86**	**1.34**	**0.099**	**1.01**	**0.051**	**3.59**	**0.00372**
		No. of Detected / No. Sampled		**10/10**	**10/10**	**10/10**	**10/10**	**10/10**	**10/10**	**10/10**	**10/10**	**10/10**
OF03703	6/15/2015	OF03703-MW15	N	1.58	0.224	0.21	1.34	0.08	0.76	0.051	1.88	0.00243
S.STATION05	6/16/2015	SS5-MW15	N	1.23	0.277	0.58	0.803	0.047	0.68	0.005 J	0.86	0.00061
SEEPA	6/15/2015	SEEPA-MW15	N	1.37	1.3	0.46	0.614	0.099	0.75	0.009 J	0.76 J	0.00089
SEEPA	6/15/2015	DUP1-MW15	FD	1.35	1.57	0.42	0.604	0.074	0.6	0.009 J	0.63	0.00099
SEEPB	6/15/2015	SEEPB-MW15	N	1.24	0.145	0.86	0.843	0.047	1.01	0.014 J	3.59	0.00127
SEEPC	6/15/2015	SEEPC-MW15	N	1.27	0.551	0.43	0.635	0.056	0.6	0.008 J	0.94	0.00248
SEEPD	6/15/2015	SEEPD-MW15	N	1.32	0.041	0.58	0.488	0.029	0.5	0.005 J	0.97	0.00372
SEEPE	6/15/2015	SEEPE-MW15	N	1.29	0.055	0.21	0.501	0.045	0.45	0.005 J	1.48	0.00161
SEEPF	6/15/2015	SEEPF-MW15	N	1.24	0.052	0.19 J	0.534	0.04	0.46	0.005 J	2.05	0.00135
SEEPG	6/15/2015	SEEPG-MW15	N	1.5	0.089	0.34	0.596	0.047	0.49	0.01 J	0.71	0.00147

Notes:
[a] Only detected concentrations are included
FD - field duplicate
ID - Identification
J - The result is an estimated concentration
µg/L - microgram per liter
N - normal environmental sample
No. - number

Table H-9. Metals Analysis Results for Area 8 Seeps and Marine Water

Sampling Station ID	Dissolved Arsenic (µg/L)		Dissolved Cadmium (µg/L)		Dissolved Chromium, Total (µg/L)		Dissolved Copper (µg/L)		Dissolved Lead (µg/L)		Dissolved Nickel (µg/L)		Dissolved Silver (µg/L)		Dissolved Zinc (µg/L)		Dissolved Mercury (µg/L)	
	Seep	MW	Seep	MW	Seep	MW	Seep	MW	Seep	MW	Seep	MW	Seep	MW	Seep	MW	Seep	MW
SEEPA	1.26	**1.37**	**45.7**	1.57	**9.68**	0.46	**1.88**	0.614	0.047	**0.099**	**1.65**	0.75	**0.057**	0.009 J	**1.63**	0.76 J	**0.00849**	0.00099
SEEPB	**1.44**	1.24	**0.321**	0.145	**2.61**	0.86	**1.13**	0.843	0.026	**0.047**	0.93	**1.01**	**0.021**	0.014 J	1.24	**3.59**	0.001	**0.00127**
SEEPC	**1.55**	1.27	**2.41**	0.551	**1.21**	0.43	**0.687**	0.635	**0.089**	0.056	**1.81**	0.6	**0.016** J	0.008 J	**1.43**	0.94	**0.00866**	0.00248
SEEPD	0.71	**1.32**	0.003 U	**0.041**	0.42	**0.58**	0.132 U	**0.488**	0.01 U	**0.029**	**0.53**	0.5	0.003 J	**0.005** J	**1.38**	0.97	**0.00589**	0.00372
SEEPE	**1.76**	1.29	0.015 J	**0.055**	0.2 J	**0.21**	0.345	**0.501**	0.027	**0.045**	**0.53**	0.45	0.003 J	**0.005** J	0.54 U	**1.48**	**0.0141**	0.00161
SEEPF	**2.51**	1.24	0.038 J	**0.052**	**0.34** J	0.19 J	0.492	**0.534**	0.028 J	**0.04**	**0.78**	0.46	**0.013** J	0.005 J	1.49 J	**2.05**	**0.00256**	0.00135
SEEPG	**2.28**	1.5	0.044	**0.089**	0.25	**0.34**	0.438	**0.596**	0.017 J	**0.047**	**0.96**	0.49	0.008 J	**0.01** J	**1.24**	0.71	0.00129	**0.00147**

Notes:
Bold indicates which concentration is higher, comparing seep and marine water.
ID - identification
J - The result is an estimated concentration
µg/L - microgram per liter
MW - marine water
No. - number
U - The compound was analyzed for, but was not detected ("nondetect") at or above the method reporting limit/method detection limit

Table H-10. Metals Analysis Results for Building 98 Water

Sampling Station ID	Sample Date	Sample No.	Sample Type	Arsenic (µg/L)	Cadmium (µg/L)	Chromium, Total (µg/L)	Copper (µg/L)	Lead (µg/L)	Nickel (µg/L)	Silver (µg/L)	Zinc (µg/L)	Mercury (µg/L)
B98	6/21/2016	B98-Potable [a]	N	0.3 J	0.037	0.3 U	7.56	1.07	2.42	0.008 UJ	81.2	0.00074
B98	6/21/2016	B98-Tank [b]	N	0.3 U	7.4	0.72	5.47	0.476	1.7	0.004 UJ	597	0.05 U
B98	6/21/2016	B98-Tank-F [a]	N	0.2 J	6.14	0.55	2.98	0.026 U	1.58	0.01 U	521	0.00093

Notes:
[a] Field filtered for dissolved metals analysis
[b] Total metals analysis
ID - Identification
J - The result is an estimated concentration.
µg/L - microgram per liter
N - normal environmental sample
No. - number
U - The compound was analyzed for, but was not detected ("nondetect") at or above the limit of detection

Table H-11. Metals, Ammonia, and Sulfide Results for Seep Water for Area 8

Transect	Sampling Station ID	Sample Date	Sample No.	Sample Type	Ammonia (mg/L)	Sulfide (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Lead (mg/L)	Nickel (mg/L)	Silver (mg/L)	Zinc (mg/L)	Mercury (mg/L)
Transect 8	SEEPC	6/5/2019	DUP-SW19	FD	0.30 U	1.9 U	0.0045	0.028	0.0084	0.0024	0.00060 U	0.0019 J	0.000087 J	0.0023 J	0.00020 U
Transect 8	SEEPC	6/5/2019	SEEPC-SW19	N	0.30 U	0.80 J	0.0047	0.028 J	0.0079	0.0010 J	0.00060 U	0.0016 J	0.000076 J	0.0037 J	0.00020 U

FD field duplicate sample
ID identification
J estimated result
mg/L milligram per liter
N normal environmental sample
No. number
U The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-12. Metals, Ammonia, Sulfide Results for Seep Water for Reference Area

Sampling Station ID	Sample Date	Sample No.	Sample Type	Ammonia (mg/L)	Sulfide (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Copper (mg/L)	Lead (mg/L)	Nickel (mg/L)	Silver (mg/L)	Zinc (mg/L)	Mercury (mg/L)
PPSP-1	6/5/2019	DUP2-SW19	FD	0.30 U	1.9 U	0.0062	0.0015 U	0.00088 J	0.0075 U	0.0030 U	0.0014 J	0.00035 U	0.020 U	0.00020 U
PPSP-1	6/5/2019	PPSP01SEEP-SW19	N	0.30 U	1.9 U	0.0057	0.0015 U	0.00091 J	0.0075 U	0.0030 U	0.0017 J	0.00035 U	0.020 U	0.00020 U

FD	field duplicate sample
ID	identification
J	estimated result
mg/L	milligram per liter
N	normal environmental sample
No.	number
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-13. PCB Results for Seep Water for Reference Area

Sampling Station ID	Sample Date	Sample No.	Sample Type	Aroclor-1016 (µg/L)	Aroclor-1221 (µg/L)	Aroclor-1232 (µg/L)	Aroclor-1242 (µg/L)	Aroclor-1248 (µg/L)	Aroclor-1254 (µg/L)	Aroclor-1260 (µg/L)	Total PCBs (µg/L)
PPSP-1	6/5/2019	DUP2-SW19	FD	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U
PPSP-1	6/5/2019	PPSP01SEEP-SW19	N	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U

µg/L microgram per liter
FD field duplicate sample
ID identification
N normal environmental sample
No. number
PCB polychlorinated biphenyl
U The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-14. SVOC/PAH Results for Seep Water for Reference Area

Sample No. Sample Type Sample Date	DUP2-SW19 FD 6/5/2019	PPSP01SEEP-SW19 N 6/5/2019
Analyte (µg/L)		
1,2,4-Trichlorobenzene	0.15 U	0.15 U
1,2-Dichlorobenzene	0.30 U	0.29 U
1,4-Dichlorobenzene	0.15 U	0.15 U
2,4-Dimethylphenol	3.0 U	2.9 U
2-Methylnaphthalene	0.15 U	0.15 U
2-Methylphenol	0.30 U	0.29 U
3 & 4 Methylphenol	0.49 U	0.49 U
Acenaphthene	0.30 U	0.29 U
Acenaphthylene	0.30 UJ	0.29 UJ
Anthracene	0.30 UJ	0.29 UJ
Benzo[a]anthracene	0.30 U	0.29 U
Benzo[a]pyrene	0.49 UJ	0.49 UJ
Benzo[g,h,i]perylene	0.30 U	0.29 U
Benzofluoranthene	0.30 U	0.29 U
Benzoic acid	3.2 UJ	3.1 UJ
Benzyl alcohol	1.4 J	1.6 UJ
Bis(2-ethylhexyl) phthalate	R	R
Butyl benzyl phthalate	0.79 U	0.78 U
Carbazole	0.3 UJ	0.29 UJ
Chrysene	0.49 U	0.49 U
Dibenz(a,h)anthracene	0.30 U	0.29 U
Dibenzofuran	0.15 U	0.15 U
Diethyl phthalate	1.6 U	1.6 U
Dimethyl phthalate	0.30 U	0.29 U
Di-n-butyl phthalate	1.6 U	1.6 U
Di-n-octyl phthalate	0.49 U	0.49 U
Fluoranthene	0.30 U	0.29 U
Fluorene	0.30 U	0.29 U
Hexachlorobenzene	0.30 U	0.29 U
Hexachlorobutadiene	0.30 U	0.29 U
Indeno[1,2,3-cd]pyrene	0.15 U	0.15 U
Naphthalene	0.30 U	0.29 U
N-Nitrosodiphenylamine	0.30 UJ	0.29 UJ
Pentachlorophenol	5.9 U	5.9 U
Phenanthrene	0.30 U	0.29 U
Phenol	0.79 U	0.78 U
Pyrene	0.30 U	0.29 U

µg/L	microgram per liter
FD	field duplicate sample
ID	identification
J	estimated result
N	normal environmental sample
No.	number
R	rejected
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-15. Metals, Ammonia, and Sulfide Results for Sediment for Area 8

Transect	Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	Ammonia (mg/kg)	Sulfide	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)	Mercury (mg/kg)
Transect 2 & 8	S.Station64	6/4/2019	SS64-SD19	0-10	N	36 U	11 UJ	2.6	4.3	20	13	5.7	17	0.31	43	0.051
Transect 8	S.Station03-C	6/4/2019	DUP-SD19	0-10	N	39 U	140 J	3.2	8.4	44	13	5.1	20	0.34	37	0.13
Transect 8	S.Station03-C	6/4/2019	SS03-C-SD19	0-10	N	38 U	84 J	2.7	15	42	11	4	20	0.41	32	0.16
Transect 8	S.Station50	6/4/2019	SS50-SD19	0-10	N	32 U	11 UJ	2.1	4.9	35	15	10	28	0.35	44	0.058
Transect 8	S.Station51	6/4/2019	SS51-SD19	0-10	N	30 U	11 UJ	2.5	4.8	37	30	82	29	0.13	130	0.075
Transect 3	SEEPA	6/4/2019	SEEPA-SD19	0-10	N	37 U	64 J	2.4	8.5	42	11	3.6	20	0.36	32	0.29
Transect 9	OF03703	6/4/2019	OF03703-SD19	0-10	N	34 U	11 UJ	3	1.8	68	22	12	25	6.1	55	0.24
Transect 9	S.Station70	6/4/2019	SS70-SD19	0-10	N	34 U	11 UJ	2	1.4	47	99	43	26	1.3	120	0.25

cm	centimeter
ID	identification
J	estimated result
mg/kg	milligram per kilogram
N	normal environmental sample
No.	number
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-16. TOC, Total Solids, and Grain Size Results for Sediment for Area 8

Transect	Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	TOC (mg/kg)	Total Solids (%)	Total Solids @ 70 (%)	Clay (%)	Cobbles (%)	Gravel (%)	Sand (%)	Silt (%)
Transect 2 & 8	S.Station64	6/4/2019	SS64-SD19	0-10	N	30,000	80.6	83	3.4	0	42	48	7.1
Transect 8	S.Station03-C	6/4/2019	DUP-SD19	0-10	N	29,000	75.1	79	2.3	0	29	61	7.4
Transect 8	S.Station03-C	6/4/2019	SS03-C-SD19	0-10	N	21,000	74.1	78	1.8	0	33	60	5
Transect 8	S.Station50	6/4/2019	SS50-SD19	0-10	N	15,000	88	87	2.1	0	27	66	5.2
Transect 8	S.Station51	6/4/2019	SS51-SD19	0-10	N	29,000	87.4	86	2.4	0	40	54	4.1
Transect 3	SEEPA	6/4/2019	SEEPA-SD19	0-10	N	15,000	72.5	75	1.9	0	32	61	5.6
Transect 9	OF03703	6/4/2019	OF03703-SD19	0-10	N	15,000	86.4	88	1.5	0	24	71	3.7
Transect 9	S.Station70	6/4/2019	SS70-SD19	0-10	N	11,000	85.9	85	2.4	0	52	40	5.1

%	percent
cm	centimeter
ID	identification
mg/kg	milligram per kilogram
N	normal environmental sample
No.	number
TOC	total organic carbon
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-17. SVOC/PAH Results for Sediment for Area 8

Sample No.	SS64-SD19
Sample Type	N
Sample Date	6/4/2019
Transect	Transect 2 & 8
Sample Depth (cm)	0-10
Analyte (µg/kg)	
1,2,4-Trichlorobenzene	45 UJ
1,2-Dichlorobenzene	89 UJ
1,4-Dichlorobenzene	89 UJ
2,4-Dimethylphenol	89 UJ
2-Methylnaphthalene	89 UJ
2-Methylphenol	89 UJ
3 & 4 Methylphenol	89 UJ
Acenaphthene	45 UJ
Acenaphthylene	45 UJ
Anthracene	45 UJ
Benzo[a]anthracene	45 UJ
Benzo[a]pyrene	89 UJ
Benzo[g,h,i]perylene	89 UJ
Benzofluoranthene	89 UJ
Benzoic acid	4700 UJ
Benzyl alcohol	R
Bis(2-ethylhexyl) phthalate	590 UJ
Butyl benzyl phthalate	360 UJ
Carbazole	89 UJ
Chrysene	89 UJ
Dibenz(a,h)anthracene	89 UJ
Dibenzofuran	45 UJ
Diethyl phthalate	590 UJ
Dimethyl phthalate	89 UJ
Di-n-butyl phthalate	360 UJ
Di-n-octyl phthalate	360 UJ
Fluoranthene	45 UJ
Fluorene	45 UJ
Hexachlorobenzene	89 UJ
Hexachlorobutadiene	89 UJ
Indeno[1,2,3-cd]pyrene	45 UJ
Naphthalene	45 UJ
N-Nitrosodiphenylamine	89 UJ
Pentachlorophenol	1200 UJ
Phenanthrene	89 UJ
Phenol	150 UJ
Pyrene	45 UJ

µg/kg	microgram per kilogram
cm	centimeter
FD	field duplicate sample
ID	identification
J	estimated result
N	normal environmental sample
No.	number
R	rejected
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-18. PCB Results for Sediment for Area 8

Transect	Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	Aroclor-1016 (µg/kg)	Aroclor-1221 (µg/kg)	Aroclor-1232 (µg/kg)	Aroclor-1242 (µg/kg)	Aroclor-1248 (µg/kg)	Aroclor-1254 (µg/kg)	Aroclor-1260 (µg/kg)	Total PCBs (µg/kg)
Transect 2 & 8	S.Station64	6/4/2019	SS64-SD19	0-10	N	1.2 U	1.8 U	1.2 U	1.2 U	0.72 U	1.8 U	1.2 U	1.8 U

µg/kg microgram per kilogram
cm centimeter
ID identification
N normal environmental sample
No. number
PCB polychlorinated biphenyl
U The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-19. Pesticides Results for Sediment for Area 8

Transect	Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	2,4-DDD (µg/kg)	2,4-DDE (µg/kg)	2,4-DDT (µg/kg)	4,4-DDD (µg/kg)	4,4-DDE (µg/kg)	4,4-DDT (µg/kg)	beta-BHC (µg/kg)	Dieldrin (µg/kg)	Endrin ketone (µg/kg)
Transect 2 & 8	S.Station64	6/4/2019	SS64-SD19	0-10	N	0.40 U	0.40 U	0.40 U	0.15 U	0.15 U	R	0.055 U	0.15 UJ	0.15 UJ

µg/kg	microgram per kilogram
BHC	benzene hexachloride
cm	centimeter
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
ID	identification
J	estimated result
N	normal environmental sample
No.	number
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-20. Metals, Ammonia, and Sulfide Results for Sediment for Reference Area

Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	Ammonia (mg/kg)	Sulfide (mg/kg)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)	Mercury (mg/kg)
PPSP-1	6/6/2019	PPSP01-SD19	0-10	N	36 U	12 U	1.7	0.067 J	15	6.5	1.6	17	0.015 J	20	0.019 U
PPSP-2	6/6/2019	DUP02-SD19	0-10	N	36 U	13 U	2.1	0.072 J	13	5.5	1.2	15	0.015 J	98 J	0.020 U
PPSP-2	6/6/2019	PPSP02-SD19	0-10	N	39 U	13 U	1.6	0.071 J	13	5.5	1.2	13	0.022 J	19 J	0.022 U
PPSP-4	6/6/2019	PPSP04-SD19	0-10	N	33 U	13 U	1.7	0.059 J	15	5.5	1.4	13	0.017 J	18	0.021 U

cm centimeter
ID identification
J estimated result
mg/kg milligram per kilogram
N normal environmental sample
No. number
U The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-21. TOC, Total Solids, and Grain Size Results for Sediment for Reference Area

Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	Total Organic Carbon (mg/kg)	Total Solids (%)	Total Solids @ 70°C (%)	Clay (%)	Cobbles (%)	Gravel (%)	Sand (%)	Silt (%)
PPSP-1	6/6/2019	PPSP01-SD19	0-10	N	5,500	78.8	77	1.2	0	35	62	1.8
PPSP-2	6/6/2019	DUP02-SD19	0-10	N	5,800	76.1	81	1.1	0	40	56	2.8
PPSP-2	6/6/2019	PPSP02-SD19	0-10	N	4,100	76.3	83	1.2	0	35	61	3.1
PPSP-4	6/6/2019	PPSP04-SD19	0-10	N	3,300	77.3	80	1.2	0	37	58	3.6

%	percent
cm	centimeter
ID	identification
mg/kg	milligram per kilogram
N	normal environmental sample
No.	number
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-22. PCB Results for Sediment for Reference Area

Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	Aroclor-1016 (µg/kg)	Aroclor-1221 (µg/kg)	Aroclor-1232 (µg/kg)	Aroclor-1242 (µg/kg)	Aroclor-1248 (µg/kg)	Aroclor-1254 (µg/kg)	Aroclor-1260 (µg/kg)	Total PCBs (µg/kg)
PPSP-1	6/6/2019	PPSP01-SD19	0-10	N	1.1 U	1.7 U	1.1 U	1.1 U	0.67 U	1.7 U	1.1 U	1.7 U
PPSP-2	6/6/2019	DUP02-SD19	0-10	N	1.2 U	1.7 U	1.2 U	1.2 U	0.69 U	1.7 U	1.2 U	1.7 U
PPSP-2	6/6/2019	PPSP02-SD19	0-10	N	1.2 U	1.8 U	1.2 U	1.2 U	0.74 U	1.8 U	1.2 U	1.8 U
PPSP-4	6/6/2019	PPSP04-SD19	0-10	N	1.1 U	1.7 U	1.1 U	1.1 U	0.68 U	1.7 U	1.1 U	1.7 U

µg/kg	microgram per kilogram
cm	centimeter
ID	identification
N	normal environmental sample
No.	number
PCB	polychlorinated biphenyl
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-23. SVOC/PAH Results for Sediment for Reference Area

Sampling Station ID	PPSP-1	PPSP-2	PPSP-2	PPSP-4
Sample No.	PPSP01-SD19	DUP02-SD19	PPSP02-SD19	PPSP04-SD19
Sample Date	6/6/2019	6/6/2019	6/6/2019	6/6/2019
Sample Type	N	N	N	N
Sample Depth (cm)	0-10	0-10	0-10	0-10
Analyte (µg/kg)				
1,2,4-Trichlorobenzene	8.2 U	8.6 U	9.5 U	9.0 U
1,2-Dichlorobenzene	16 U	17 U	19 U	18 U
1,4-Dichlorobenzene	16 U	17 U	19 U	18 U
2,4-Dimethylphenol	16 U	17 U	19 U	18 U
2-Methylnaphthalene	16 U	17 U	19 U	18 U
2-Methylphenol	16 U	17 U	19 U	18 U
3 & 4 Methylphenol	12 J	17 U	19 U	18 U
Acenaphthene	8.2 U	8.6 U	9.5 U	9.0 U
Acenaphthylene	8.2 U	8.6 U	9.5 U	9.0 U
Anthracene	8.2 U	8.6 U	9.5 U	9.0 U
Benzo[a]anthracene	8.2 U	8.6 U	9.5 U	9.0 U
Benzo[a]pyrene	16 U	17 U	19 U	18 U
Benzo[g,h,i]perylene	16 U	17 U	19 U	18 U
Benzofluoranthene	16 U	17 U	19 U	18 U
Benzoic acid	880 UJ	910 U	1000 U	960 U
Benzyl alcohol	110 U	110 U	130 U	120 U
Bis(2-ethylhexyl) phthalate	110 U	110 U	130 U	120 U
Butyl benzyl phthalate	66 U	68 U	76 U	72 U
Carbazole	16 U	17 U	19 U	18 U
Chrysene	16 U	17 U	19 U	18 U
Dibenz(a,h)anthracene	16 U	17 U	19 U	18 U
Dibenzofuran	8.2 U	8.6 U	9.5 U	9.0 U
Diethyl phthalate	110 U	110 U	130 U	120 U
Dimethyl phthalate	16 U	17 U	19 U	18 U
Di-n-butyl phthalate	66 U	68 U	76 U	72 U
Di-n-octyl phthalate	66 U	68 U	76 U	72 U
Fluoranthene	8.2 U	8.6 U	9.5 U	9.0 U
Fluorene	8.2 U	8.6 U	9.5 U	9.0 U
Hexachlorobenzene	16 U	17 U	19 U	18 U
Hexachlorobutadiene	16 U	17 U	19 U	18 U
Indeno[1,2,3-cd]pyrene	8.2 U	8.6 U	9.5 U	9.0 U
Naphthalene	8.2 U	8.6 U	9.5 U	9.0 U
N-Nitrosodiphenylamine	16 U	17 U	19 U	18 U
Pentachlorophenol	220 U	230 U	250 U	240 U
Phenanthrene	16 U	17 U	19 U	18 U
Phenol	130 J	26 J	27 J	30 U
Pyrene	8.2 U	8.6 U	9.5 U	9.0 U

µg/kg	microgram per kilogram
cm	centimeter
ID	identification
J	estimated result
N	normal environmental sample
No.	number
R	rejected
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-24. Pesticides Results for Sediment for Reference Area

Sampling Station ID	Sample Date	Sample No.	Sample Depth (cm)	Sample Type	2,4-DDD (µg/kg)	2,4-DDE (µg/kg)	2,4-DDT (µg/kg)	4,4-DDD (µg/kg)	4,4-DDE (µg/kg)	4,4-DDT (µg/kg)	beta-BHC (µg/kg)	Dieldrin (µg/kg)	Endrin ketone (µg/kg)
PPSP-1	6/6/2019	PPSP01-SD19	0-10	N	1.1 U	1.1 U	1.1 U	0.42 U	0.42 U	0.42 U	0.15 U	0.42 U	0.42 U
PPSP-2	6/6/2019	DUP02-SD19	0-10	N	1.1 U	1.1 U	1.1 U	0.43 U	0.43 U	0.43 U	0.16 U	0.43 U	0.43 U
PPSP-2	6/6/2019	PPSP02-SD19	0-10	N	1.2 U	1.2 U	1.2 U	0.46 U	0.46 U	0.46 U	0.17 U	0.46 U	0.46 U
PPSP-4	6/6/2019	PPSP04-SD19	0-10	N	1.1 U	1.1 U	1.1 U	0.42 U	0.42 U	0.42 U	0.15 U	0.42 U	0.42 U

µg/kg	microgram per kilogram
BHC	benzene hexachloride
cm	centimeter
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
ID	identification
N	normal environmental sample
No.	number
U	The compound was analyzed for, but was not detected ("nondetect") at or above the reported detection limit

Table H-25. Comparison of Historical Data Used to Select Sediment Bioassay Test Locations to 2019 Metals Data for Sediment

Sampling Station	Sample	Sample ID	Site Sediment Concentrations Cd (mg/kg)	Hg (mg/kg)	Ag (mg/kg)	Rationale and Results *
	Sediment Benchmark:	SCO	5.1	0.41	6.1	
		CSL	6.7	0.59	6.1	
S.STATION03 (Seep C)	6/16/2015	SS03-SD15	**11.4**	0.074	0.433	Maximum cadmium sediment concentration; confirmation of prior bioassay results (where applicable)
SS03-C	6/4/2019	SS03-C-SD19	**15**	0.16	0.41	Higher Cd concentration, no seep toxicity, abnormal bivalve development in sediment, reduced growth in polychaetes
SS03-C Dup	6/4/2019	DUP01-SD19	**8.4**	0.13	0.34	Duplicate
S.STATION50	6/15/2015	SS50-SD15	**8.84 J**	0.308	0.469	Mid-range cadmium sediment concentration
	6/4/2019	SS50-SD19	4.9	0.058	0.35	No SMS criteria exceedances, no toxicity
S.STATION51	6/15/2015	SS51-SD15	**10.2 J**	**2.42**	0.099	Second highest cadmium and highest mercury; synergistic effects with mercury
	6/4/2019	SS51-SD19	4.8	0.075	0.13	No SMS criteria exceedances, no toxicity
SEEP A (Sediment)	6/15/2015	SEEPC-SD15	**6.8 J**	0.133	0.299	Mid-range cadmium concentration
	6/4/2019	SEEPA-SD19	**8.5**	0.29	0.36	Mid-range cadmium concentration, abnormal bivalve development, reduced growth in polychaetes
S.STATION64	6/21/2016	SS64-CL16	2.71	0.082	0.208	Low cadmium sediment concentration, but maximum cadmium tissue concentration
	6/4/2019	SS64-SD19	4.3	0.051	0.31	Low cadmium sediment concentration, but historical maximum cadmium tissue concentration; reduced growth in polychaetes
S.STATION70	6/21/2016	SS70-SD16	3.18 J	**0.491**	**7.75 J**	Low cadmium sediment concentration, but cadmium tissue accumulation, mercury above SCO and high silver concentration; silver tissue concentration of 0.463 mg/kg exceeds background of 0.009 mg/kg; near dry outfall
	6/4/2019	SS70-SD19	1.4	0.25	1.3	No SMS criteria exceedances, no toxicity
OF03703	6/16/2015	OF03703-SD15	3.93	**0.627**	1.98	Exceeds mercury CSL and elevated cadmium tissue concentration
	6/4/2019	OF03703-SD19	1.8	0.24	6.1	At silver CSO/CSL, but no toxicity

Notes:

Bold - exceeds SCO.

Bold and yellow-highlight - exceeds CSL

The seep benchmarks is the National Ambient Water Quality Criterion.

*No toxicity was observed in the sediment amphipod bioassay and the seep bivalve bioassay.

Ag	silver
Cd	cadmium
CSL	SMS Cleanup Screening Level
Hg	mercury
ID	identification
J	The result is an estimated concentration
mg/kg	milligram per kilogram
SCO	SMS Sediment Cleanup Objective
SMS	Sediment Management Standards, Washington State Dept. of Ecology

Table H-26. Soil Vapor Sample Results (ug/m^3)

	Location Name	OU2A8-SV-1	OU2A8-SV-2	OU2A8-SV-3	OU2A8-SV-3	OU2A8-SV-4	OU2A8-SV-5	OU2A8-SV-5	OU2A8-SV-6
	Sample Name	OU2A8-SV-1-5.0	OU2A8-SV-2-5.0	OU2A8-SV-3-5.0	OU2A8-SV-3-8.0	OU2A8-SV-4-5.0	OU2A8-SV-5-5.0	OU2A8-SV-7-5.0	OU2A8-SV-6-5.0
	Sample Type	N	N	N	N	N	P	FD	N
Analyte	**PAL**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**	**Result**
1,1,2-Trichloroethane	6.67	6.2 U	**7.7** U	1.6 U	1.5 U	1.5 U	1.5 U	1.5 U	1.6 U
1,1-Dichloroethene	6,667	4.2 J	4.8 J	1.6 U	1.5 U	1.5 U	5.5	5.3	3
1,4-Dioxane	167	6.2 U	7.7 U	1.6 U	1.5 U	1.5 U	1.5 U	1.5 U	1.6 U
Benzene	107	6 U	7.6 U	0.63 J	1.5 J	3.4	2.1	4.7	1.5 U
Carbon Tetrachloride	139	6 U	7.6 U	1.6 U	1.5 U	33	1.5 U	1.5 U	1.5 U
cis-1,2-Dichloroethene	NE	38 J	7.7 U	1.6 U	0.94 J	0.83 J	1.5 U	1.5 U	1.6 U
Ethylbenzene	33,333	6 U	7.6 U	1.6 U	1.5 U	1.5 U	1.5 U	0.95 J	1.5 U
Tetrachloroethene	1,333	150 J	**1,500**	16	22	5.9	3.4	3.5	0.58 J
trans-1,2-Dichlorothene	2,000	**5,300** J	240	0.82 J	1.5 U	1.5 U	1.5 U	1.5 U	1.6 U
Trichloroethene	66.7	**1,300** J	**1,200**	**73**	**140**	**290** D	41	41	16
Vinyl Chloride	93.3	5.9 U	7.4 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Helium	NE	180,000	7,900	20,000	1,300 U	1,300 U	1,300 U	1,300 U	1,300 U

Notes:

Volatile organic compounds analyzed by EPA Method TO 15
Helium analyzed by EPA Method 3C Modified
Bold text indicates that the result or the reporting limit exceeds the PAL.
D - Result is from a laboratory diluted sample
P - Parent sample
FD - Field Duplicate
J - Result is an estimated value
N - Native sample
NE - Not established
PAL - Project action limit as established in the sampling and analysis plan
U - Analyte not detected at the indicated reporting limit
ug/m^3 - micrograms per cubic meter

Table H-27. Outdoor/Ambient Air Sampling Results at Area 8

ANALYTE_NAME					Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride
PAL Air - Indoor (μg/m^3)					40	2	NE	60	200	2.8
LOCATION_NAME	SAMPLE_NAME	SAMPLE_TYPE	COLLECT_DATE	Description	Result (μg/m^3)	Result (μg/m^3)	Result (μg/m^3)	Result (μg/m^3)	Result (μg/m^3)	Result (μg/m^3)
Apr-19										
Area8-OA-1	Area8-OA-1-190415	P	4/15/2019	Air - Outdoor	0.11 J	0.032 J	0.015 U	0.012 U	0.014 U	0.012 U
Area8-OA-4	Area8-OA-4-190415	FD	4/15/2019	Air - Outdoor	0.31 J	0.038 J	0.016 U	0.013 U	0.015 U	0.013 U
Area8-OA-2	Area8-OA-2-190415	N	4/15/2019	Air - Outdoor	0.028 J	0.012 U	0.013 U	0.01 U	0.012 U	0.01 U
Area8-OA-3	Area8-OA-3-190415	N	4/15/2019	Air - Outdoor	0.028 J	0.013 U	0.014 U	0.011 U	0.013 U	0.011 U
Area8-OA-5	Area8-OA-5-190416	P	4/16/2019	Air - Outdoor	0.037	0.012 U	0.013 U	0.032 J	0.012 U	0.011 U
Area8-OA-6	Area8-OA-6-190416	FD	4/16/2019	Air - Outdoor	0.034 J	0.012 U	0.013 U	0.033 J	0.012 U	0.011 U
Jul-19										
Area8-OA-1	Area8-OA-1-190723	N	7/23/2019	Air - Outdoor	0.027 J	0.029 U	0.029 U	0.14	0.029 U	0.029 U
Area8-OA-2	Area8-OA-2-190723	P	7/23/2019	Air - Outdoor	0.029 J	0.029 U	0.029 U	0.28	0.029 U	0.029 U
Area8-OA-4	Area8-OA-4-190723	FD	7/23/2019	Air - Outdoor	0.028 J	0.029 U	0.029 U	0.28	0.029 U	0.029 U
Area8-OA-3	Area8-OA-3-190723	N	7/23/2019	Air - Outdoor	0.033 J	0.029 U	0.029 U	0.44	0.029 U	0.029 U

NOTES:
FD - Field Duplicate
P - Parent
N - Normal (no field duplicate)
U - Undetected at the limit of detection shown
J - The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

April Samples:
OA-4 is FD of OA-1
OA-5/OA-6 location is same as OA-2 location

July Samples:
OA-4 is FD of OA-2

Table H-28. Vapor Intrusion Sampling Results at Area 8 - Building 82

ANALYTE_NAME					Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride
PAL Air - Indoor (μg/m^3)					40	2	NE	60	200	2.8
PAL Soil Gas - Subslab (μg/m3)					1330	66.7	NE	2000	6670	93.3
LOCATION_NAME	SAMPLE_NAME	SAMPLE_TYPE	COLLECT_DATE	Description	Result (μg/m^3)	Result (μg/m^3)	Result (μg/m^3)	Result (μg/m^3)	Result (μg/m^3)	Result (μg/m^3)
April										
Area8-B82-IA-1	Area8-B82-IA-1-190415	N	4/15/2019	Air - Indoor	3.6	1.3	0.013 U	0.53	0.012 U	0.011 U
Area8-B82-SS-1	Area8-B82-SS-1-190416	N	4/16/2019	Soil Gas - Subslab	410 J	**3600**	0.62 J	51	7	0.22 U
Area8-B82-SS-8	Area8-B82-SS-8-190416	FD	4/16/2019	Soil Gas - Subslab	300 J	**3500**	0.62 J	53	6.8	0.23 U
				Air - Indoor- Correctec	3.49	1.268 J	0.013 U	0.53	0.012 U	0.011 U
Area8-B82-IA-2	Area8-B82-IA-2-190415	N	4/15/2019	Air - Indoor	0.18 J	0.18 J	0.028 J	0.21 J	0.013 U	0.012 U
Area8-B82-IA-8	Area8-B82-IA-8-190415	FD	4/15/2019	Air - Indoor	0.32 J	0.31 J	0.014 J	0.35 J	0.013 U	0.012 U
Area8-B82-SS-2	Area8-B82-SS-2-190416	N	4/16/2019	Soil Gas - Subslab	140	**260**	0.29 U	0.37 J	0.29 U	0.22 U
				Air - Indoor- Correctec	0.21	0.278 J	0.028 J	0.35	0.013 U	0.012 U
Area8-B82-IA-3	Area8-B82-IA-3-190415	N	4/15/2019	Air - Indoor	0.27	0.26	0.013 U	0.53	0.012 U	0.011 U
Area8-B82-SS-3	Area8-B82-SS-3-190416	N	4/16/2019	Soil Gas - Subslab	330	**3100**	0.93 J	2.1	2.1	0.22 U
				Air - Indoor- Correctec	0.16	0.228 J	0.013 U	0.53	0.012 U	0.011 U
Area8-B82-IA-4	Area8-B82-IA-4-190415	N	4/15/2019	Air - Indoor	0.25	0.24	0.014 U	0.53	0.013 U	0.012 U
Area8-B82-SS-4	Area8-B82-SS-4-190416	N	4/16/2019	Soil Gas - Subslab	0.38 J	11	0.45 J	0.29 U	0.75 J	0.22 U
				Air - Indoor- Correctec	0.14	0.208 J	0.014 U	0.53	0.013 U	0.012 U
Area8-B82-IA-5	Area8-B82-IA-5-190415	N	4/15/2019	Air - Indoor	0.13	0.49	0.014 U	0.47	0.014 U	0.012 U
Area8-B82-SS-5	Area8-B82-SS-5-190416	N	4/16/2019	Soil Gas - Subslab	0.82 J	3.5	0.32 U	0.32 U	0.32 U	0.25 U
				Air - Indoor- Correctec	0.02	0.458 J	0.014 U	0.47	0.014 U	0.012 U
Area8-B82-IA-6	Area8-B82-IA-6-190415	N	4/15/2019	Air - Indoor	0.11	0.66	0.015 U	0.75	0.014 U	0.013 U
Area8-B82-SS-6	Area8-B82-SS-6-190416	N	4/16/2019	Soil Gas - Subslab	2.5	**120**	0.3 U	0.29 U	0.29 U	0.23 U
				Air - Indoor- Correctec	0	0.628 J	0.015 U	0.75	0.014 U	0.013 U
Area8-B82-IA-7	Area8-B82-IA-7-190415	N	4/15/2019	Air - Indoor	0.2	0.19	0.014 U	0.43	0.013 U	0.011 U
Area8-B82-SS-7	Area8-B82-SS-7-190416	N	4/16/2019	Soil Gas - Subslab	1.1 J	**97**	0.3 U	1.5 J	0.3 U	0.23 U
				Air - Indoor- Correctec	0.09	0.158 J	0.014 U	0.43	0.013 U	0.011 U
Area8-OA-1	Area8-OA-1-190415	N	4/15/2019	Air - Outdoor	0.11 J	0.032 J	0.015 U	0.012 U	0.014 U	0.012 U
Area8-OA-4	Area8-OA-4-190415	FD	4/15/2019	Air - Outdoor	0.31 J	0.038 J	0.016 U	0.013 U	0.015 U	0.013 U
July										
Area8-B82-IA-1	Area8-B82-IA-1-190723	N	7/23/2019	Air - Indoor	0.26	0.17	0.056	33	0.033 U	0.033 U
Area8-B82-IA-8	Area8-B82-IA-8-190723	FD	7/23/2019	Air - Indoor	0.25	0.17	0.057	36	0.027 U	0.027 U
Area8-B82-SS-1	Area8-B82-SS-1-190724	N	7/24/2019	Soil Gas - Subslab	400	**3300** J	3.4 U	34	3.4 U	3.4 U
Area8-B82-SS-8	Area8-B82-SS-8-190724	FD	7/24/2019	Soil Gas - Subslab	480	**4400** J	2.8 U	39	1.7 J	2.8 U
				Air - Indoor- Correctec	0.233 J	0.17	0.057	35.86	0.027 U	0.027 U
Area8-B82-IA-2	Area8-B82-IA-2-190723	N	7/23/2019	Air - Indoor	0.12	0.062	0.31	**180**	0.03 U	0.03 U
Area8-B82-SS-2	Area8-B82-SS-2-190724	N	7/24/2019	Soil Gas - Subslab	210	**360**	0.66 U	0.66 U	0.66 U	0.66 U
				Air - Indoor- Correctec	0.093 J	0.062	0.31	**179.86**	0.03 U	0.03 U
Area8-B82-IA-3	Area8-B82-IA-3-190723	N	7/23/2019	Air - Indoor	0.082	0.081	0.33	**190**	0.033 U	0.033 U
Area8-B82-SS-3	Area8-B82-SS-3-190724	N	7/24/2019	Soil Gas - Subslab	380	**2700**	2.4 U	2.4 J	2.4 U	2.4 U
				Air - Indoor- Correctec	0.055 J	0.081	0.33	**189.86**	0.033 U	0.033 U
Area8-B82-IA-4	Area8-B82-IA-4-190723	N	7/23/2019	Air - Indoor	0.053	0.027 J	0.32	**180**	0.03 U	0.03 U
Area8-B82-SS-4	Area8-B82-SS-4-190724	N	7/24/2019	Soil Gas - Subslab	1.6 J	7.1	0.66 U	0.66 U	0.66 U	0.66 U
				Air - Indoor- Correctec	0.026 J	0.027 J	0.32	**179.86**	0.03 U	0.03 U
Area8-B82-IA-5	Area8-B82-IA-5-190723	N	7/23/2019	Air - Indoor	0.048	0.18	0.56	**330**	0.031 U	0.031 U
Area8-B82-SS-5	Area8-B82-SS-5-190724	N	7/24/2019	Soil Gas - Subslab	71	29	1.8 J	0.68 U	1.1 J	0.68 U
				Air - Indoor- Correctec	0.021 J	0.18	0.56	**329.86**	0.031 U	0.031 U
Area8-B82-IA-6	Area8-B82-IA-6-190723	N	7/23/2019	Air - Indoor	0.047	0.25	0.71	**340**	0.013 J	0.031 U
Area8-B82-SS-6	Area8-B82-SS-6-190724	N	7/24/2019	Soil Gas - Subslab	2.2 J	**150**	0.75 U	0.49 J	0.75 U	0.75 U
				Air - Indoor- Correctec	0.02 J	0.25	0.71	**339.86**	0.013 J	0.031 U
Area8-B82-IA-7	Area8-B82-IA-7-190723	N	7/23/2019	Air - Indoor	0.082	0.057	1.8	**980**	0.037 J	0.031 U
Area8-B82-SS-7	Area8-B82-SS-7-190724	N	7/24/2019	Soil Gas - Subslab	1.7 J	**140**	0.68 U	1.4 J	0.68 U	0.68 U
				Air - Indoor- Correctec	0.055 J	0.057	1.8	**979.86**	0.037 J	0.031 U
Area8-OA-1	Area8-OA-1-190723	N	7/23/2019	Air - Outdoor	0.027 J	0.029 U	0.029 U	0.14	0.029 U	0.029 U

NOTES:

Bold - exceeds PAL

FD - Field Duplicate

P - Parent

N - Normal (no field duplicate)

U - Undetected at the limit of detection shown

J - The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

Table H-29. Vapor Intrusion Sampling Results at Area 8 - Building 85

ANALYTE_NAME					Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride
PAL Air - Indoor (µg/m^3)					40	2	NE	60	200	2.8
PAL Soil Gas - Subslab (µg/m3)					1330	66.7	NE	2000	6670	93.3
LOCATION_NAME	SAMPLE_NAME	SAMPLE_TYPE	COLLECT_DATE	Description	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)	Result (µg/m^3)
Apr-19										
Area8-B85-IA-1	Area8-B85-IA-1-190415	N	4/15/2019	Air - Indoor	0.029 J	0.014 U	0.015 U	0.012 U	0.014 U	0.012 U
Area8-B85-SS-1	Area8-B85-SS-1-190416	N	4/16/2019	Soil Gas - Subslab	45	17	0.29 U	0.28 U	0.28 U	0.22 U
Area8-B85-SS-3	Area8-B85-SS-3-190416	FD	4/16/2019	Soil Gas - Subslab	37	17	0.28 U	0.28 U	0.28 U	0.21 U
				Air - Indoor- Corrected	0.001 J	0.014 U	0.015 U	0.012 U	0.014 U	0.012 U
Area8-B85-IA-2	Area8-B85-IA-2-190415	N	4/15/2019	Air - Indoor	0.098	0.047	0.014 U	0.011 U	0.013 U	0.011 U
Area8-B85-IA-3	Area8-B85-IA-3-190415	FD	4/15/2019	Air - Indoor	0.094	0.045 J	0.02 U	0.016 U	0.019 U	0.016 U
Area8-B85-SS-2	Area8-B85-SS-2-190416	N	4/16/2019	Soil Gas - Subslab	1300	**640**	0.28 U	0.28 U	1.7 J	0.21 U
				Air - Indoor- Corrected	0.07 J	0.047	0.014 U	0.011 U	0.013 U	0.011 U
Area8-OA-2	Area8-OA-2-190415	N	4/15/2019	Air - Outdoor	0.028 J	0.012 U	0.013 U	0.01 U	0.012 U	0.01 U
Jul-19										
Area8-B85-IA-1	Area8-B85-IA-1-190723	N	7/23/2019	Air - Indoor	0.035 J	0.034 U	0.034 U	0.3	0.034 U	0.034 U
Area8-B85-SS-1	Area8-B85-SS-1-190724	N	7/24/2019	Soil Gas - Subslab	74	33	0.66 U	0.66 U	0.66 U	0.66 U
				Air - Indoor- Correctec	0.006	0.034 U	0.034 U	0.02	0.034 U	0.034 U
Area8-B85-IA-2	Area8-B85-IA-2-190723	N	7/23/2019	Air - Indoor	0.11	0.064	0.031 U	0.25	0.031 U	0.031 U
Area8-B85-IA-3	Area8-B85-IA-3-190723	FD	7/23/2019	Air - Indoor	0.11	0.059	0.031 U	0.25	0.031 U	0.031 U
Area8-B85-SS-2	Area8-B85-SS-2-190724	N	7/24/2019	Soil Gas - Subslab	**3100**	**1400**	5 U	5 U	5 U	5 U
Area8-B85-SS-3	Area8-B85-SS-3-190724	FD	7/24/2019	Soil Gas - Subslab	**2500**	**1100**	1.8 U	1.8 U	1.8 U	1.8 U
				Air - Indoor- Correctec	0.081	0.064	0.031 U	0	0.031 U	0.031 U
Area8-OA-2	Area8-OA-2-190723	N	7/23/2019	Air - Outdoor	0.029 J	0.029 U	0.029 U	0.28	0.029 U	0.029 U
Area8-OA-4	Area8-OA-4-190723	FD	7/23/2019	Air - Outdoor	0.028 J	0.029 U	0.029 U	0.28	0.029 U	0.029 U

NOTES:

Bold - exceeds PAL

FD - Field Duplicate

P - Parent

N - Normal (no field duplicate)

U - Undetected at the limit of detection shown

J - The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

Table H-30. Vapor Intrusion Sampling Results at Area 8 - Building 98

ANALYTE_NAME					Tetrachloroethene		Trichloroethene		cis-1,2-Dichloroethene		trans-1,2-Dichloroethene		1,1-Dichloroethene		Vinyl chloride	
PAL Air - Indoor (µg/m^3)					40		2		NE		60		200		2.8	
PAL Soil Gas - Subslab (µg/m3)					1330		66.7		NE		2000		6670		93.3	
LOCATION_NAME	SAMPLE_NAME	SAMPLE_TYPE	COLLECT_DATE	Description	Result (µg/m^3)		Result (µg/m^3)		Result (µg/m^3)		Result (µg/m^3)		Result (µg/m^3)		Result (µg/m^3)	
Apr-19																
Area8-B98-IA-1	Area8-B98-IA-1-190416	N	4/16/2019	Air - Indoor	0.69		0.48		0.018	J	0.81		0.012	U	0.011	U
Area8-B98-SS-1	Area8-B98-SS-1-190417	N	4/17/2019	Soil Gas - Subslab	4.4		15		1.5	J	1.6	J	0.41	U	0.31	U
				Air - Indoor- Corrected	0.662	J	0.48		0.018	J	0.778		0.012	U	0.011	U
Area8-B98-IA-2	Area8-B98-IA-2-190416	N	4/16/2019	Air - Indoor	0.64		0.49		0.021	J	2.2		0.013	U	0.011	U
Area8-B98-SS-2	Area8-B98-SS-2-190417	N	4/17/2019	Soil Gas - Subslab	8.8		15		0.43	U	0.92	J	0.43	U	0.33	U
				Air - Indoor- Corrected	0.612	J	0.49		0.021	J	2.168		0.013	U	0.011	U
Area8-B98-IA-3	Area8-B98-IA-3-190415	N	4/15/2019	Air - Indoor	0.091		0.18		0.019	J	7.4		0.013	U	0.012	U
Area8-B98-SS-3	Area8-B98-SS-3-190417	N	4/17/2019	Soil Gas - Subslab	0.69	U	4.3	J	0.75	U	27		0.74	U	0.57	U
Area8-B98-SS-13	Area8-B98-SS-13-190417	FD	4/17/2019	Soil Gas - Subslab	0.71	U	5.8		0.77	U	25		0.76	U	0.58	U
				Air - Indoor- Corrected	0.063	J	0.18		0.019	J	7.368		0.013	U	0.012	U
Area8-B98-IA-4	Area8-B98-IA-4-190416	N	4/16/2019	Air - Indoor	0.84		0.69		0.027	J	2.2		0.015	J	0.011	U
Area8-B98-SS-4	Area8-B98-SS-4-190417	N	4/17/2019	Soil Gas - Subslab	2.6	J	**150**		0.44	U	16		0.43	U	0.33	U
				Air - Indoor- Corrected	0.812	J	0.69		0.027	J	2.168		0.015	J	0.011	U
Area8-B98-IA-5	Area8-B98-IA-5-190415	N	4/15/2019	Air - Indoor	0.95		0.88		0.014	U	0.89		0.098		0.012	U
Area8-B98-SS-5	Area8-B98-SS-5-190417	N	4/17/2019	Soil Gas - Subslab	11		31		0.46	U	1.1	J	0.45	U	0.35	U
				Air - Indoor- Corrected	0.922	J	0.88		0.014	U	0.858		0.098		0.012	U
Area8-B98-IA-6	Area8-B98-IA-6-190415	N	4/15/2019	Air - Indoor	0.12		0.27		0.014	U	1.5		0.013	U	0.012	J
Area8-B98-SS-6	Area8-B98-SS-6-190417	N	4/17/2019	Soil Gas - Subslab	31		18		0.72	U	8.4		0.71	U	0.54	U
				Air - Indoor- Corrected	0.092	J	0.27		0.014	U	1.468		0.013	U	0.012	J
Area8-B98-IA-7	Area8-B98-IA-7-190416	N	4/16/2019	Air - Indoor	0.59		0.54		0.021	J	1.7		0.012	U	0.011	U
Area8-B98-SS-7	Area8-B98-SS-7-190417	N	4/17/2019	Soil Gas - Subslab	82		**500**		1.6	J	47		0.7	U	0.54	U
				Air - Indoor- Corrected	0.562	J	0.54		0.021	J	1.668		0.012	U	0.011	U
Area8-B98-IA-8	Area8-B98-IA-8-190415	N	4/15/2019	Air - Indoor	0.13		0.26		0.033	J	0.71		0.014	U	0.012	U
Area8-B98-SS-8	Area8-B98-SS-8-190417	N	4/17/2019	Soil Gas - Subslab	350		**1000**		200		9		1.2	U	0.95	U
				Air - Indoor- Corrected	0.102	J	0.26		0.033	J	0.678		0.014	U	0.012	U
Area8-B98-IA-9	Area8-B98-IA-9-190415	N	4/15/2019	Air - Indoor	0.15		0.35		0.014	U	0.91		0.013	U	0.012	U
Area8-B98-SS-9	Area8-B98-SS-9-190417	N	4/17/2019	Soil Gas - Subslab	14		**100**		0.42	U	6.7		0.41	U	0.32	U
				Air - Indoor- Corrected	0.122	J	0.35		0.014	U	0.878		0.013	U	0.012	U
Area8-B98-1A-10	Area8-B98-1A-10-190416	N	4/16/2019	Air - Indoor	2.2		1.1		0.027	J	1.5		0.014	J	0.011	U
Area8-B98-1A-15	Area8-B98-1A-15-190416	FD	4/16/2019	Air - Indoor	2.1		1.1		0.026	J	1.5		0.015	J	0.011	U
Area8-B98-SS-10	Area8-B98-SS-10-190417	N	4/17/2019	Soil Gas - Subslab	**1900**		**1500**		22		31		1.6	U	1.3	U
				Air - Indoor- Corrected	2.172	J	1.1		0.027	J	1.468		0.015	J	0.011	U
Area8-B98-1A-11	Area8-B98-1A-11-190416	N	4/16/2019	Air - Indoor	2.1		1.1		0.027	J	1.3		0.015	J	0.011	U
Area8-B98-SS-11	Area8-B98-SS-11-190417	N	4/17/2019	Soil Gas - Subslab	410		**1500**		17		11	J	1.9	U	1.5	U
				Air - Indoor- Corrected	2.072	J	1.1		0.027	J	1.268		0.015	J	0.011	U
Area8-B98-IA-12	Area8-B98-IA-12-190415	N	4/15/2019	Air - Indoor	0.38		0.43		0.015	J	1.6		0.012	U	0.011	U
Area8-B98-IA-14	Area8-B98-IA-14-190415	FD	4/15/2019	Air - Indoor	0.39		0.45		0.015	J	1.6		0.014	U	0.012	U
Area8-B98-SS-12	Area8-B98-SS-12-190417	N	4/17/2019	Soil Gas - Subslab	110		60		0.58	J	21		0.43	U	0.33	U
				Air - Indoor- Corrected	0.362	J	0.45		0.015	J	1.568		0.012	U	0.012	U
Area8-B98-IA-13	Area8-B98-IA-13-190415	N	4/15/2019	Air - Indoor	0.082		0.078		0.33		**140**		0.012	U	0.011	U
				Air - Indoor- Corrected	0.054	J	0.078		0.33		**139.968**		0.012	U	0.011	U
Area8-OA-2	Area8-OA-2-190415	N	4/15/2019	Air - Outdoor	0.028	J	0.012	U	0.013	U	0.01	U	0.012	U	0.01	U
Area8-OA-5	Area8-OA-5-190416	N	4/16/2019	Air - Outdoor	0.037		0.012	U	0.013	U	0.032	J	0.012	U	0.011	U
Area8-OA-6	Area8-OA-6-190416	FD	4/16/2019	Air - Outdoor	0.034	J	0.012	U	0.013	U	0.033	J	0.012	U	0.011	U

Table H-30. Vapor Intrusion Sampling Results at Area 8 - Building 98

ANALYTE_NAME					Tetrachloroethene		Trichloroethene		cis-1,2-Dichloroethene		trans-1,2-Dichloroethene		1,1-Dichloroethene		Vinyl chloride	
PAL Air - Indoor (μg/m^3)					40		2		NE		60		200		2.8	
PAL Soil Gas - Subslab (μg/m3)					1330		66.7		NE		2000		6670		93.3	
LOCATION_NAME	SAMPLE_NAME	SAMPLE_TYPE	COLLECT_DATE	Description	Result (μg/m^3)		Result (μg/m^3)		Result (μg/m^3)		Result (μg/m^3)		Result (μg/m^3)		Result (μg/m^3)	
Jul-19																
Area8-B98-IA-1	Area8-B98-IA-1-190723	N	7/23/2019	Air - Indoor	0.03	J	0.015	J	0.023	J	9.5		0.031	U	0.031	U
Area8-B98-SS-1	Area8-B98-SS-1-190724	N	7/24/2019	Soil Gas - Subslab	7.1		17		0.72	U	1.2	J	0.72	U	0.72	U
				Air - Indoor- Corrected	0.001	J	0.015	J	0.023	J	9.22		0.031	U	0.031	U
Area8-B98-IA-2	Area8-B98-IA-2-190723	N	7/23/2019	Air - Indoor	0.028	J	0.031	U	0.031	U	2.7		0.031	U	0.031	U
Area8-B98-SS-2	Area8-B98-SS-2-190724	N	7/24/2019	Soil Gas - Subslab	12		20		0.68	J	0.56	J	0.7	U	0.7	U
				Air - Indoor- Corrected	0	J	0.031	U	0.031	U	2.42		0.031	U	0.031	U
Area8-B98-IA-3	Area8-B98-IA-3-190723	N	7/23/2019	Air - Indoor	0.031	J	0.024	J	0.028	J	15		0.031	U	0.031	U
Area8-B98-SS-3	Area8-B98-SS-3-190724	N	7/24/2019	Soil Gas - Subslab	1.8	J	16		0.73	U	7.3		0.73	U	0.73	U
Area8-B98-SS-13	Area8-B98-SS-13-190724	FD	7/24/2019	Soil Gas - Subslab	1.2	J	17		0.66	U	7.7		0.66	U	0.66	U
				Air - Indoor- Corrected	0.002	J	0.024	J	0.028	J	14.72		0.031	U	0.031	U
Area8-B98-IA-4	Area8-B98-IA-4-190723	N	7/23/2019	Air - Indoor	0.039	J	0.061		0.021	J	7.7		0.035	U	0.035	U
Area8-B98-SS-4	Area8-B98-SS-4-190724	N	7/24/2019	Soil Gas - Subslab	4		**170**		0.65	U	5.3		0.65	U	0.65	U
				Air - Indoor- Corrected	0.01	J	0.061		0.021	J	7.42		0.035	U	0.035	U
Area8-B98-IA-5	Area8-B98-IA-5-190723	N	7/23/2019	Air - Indoor	1		0.15		0.031	J	13		0.15		0.036	U
Area8-B98-SS-5	Area8-B98-SS-5-190724	N	7/24/2019	Soil Gas - Subslab	6.4		17		0.68	U	1.5	J	0.68	U	0.68	U
				Air - Indoor- Corrected	0.971		0.15		0.031	J	12.72		0.15		0.036	U
Area8-B98-IA-6	Area8-B98-IA-6-190723	N	7/23/2019	Air - Indoor	0.054		0.14		0.75		**280**		0.031	U	0.031	U
Area8-B98-SS-6	Area8-B98-SS-6-190724	N	7/24/2019	Soil Gas - Subslab	25		15		0.62	U	5.5		0.62	U	0.62	U
				Air - Indoor- Corrected	0.025		0.14		0.75		**280**		0.031	U	0.031	U
Area8-B98-IA-7	Area8-B98-IA-7-190723	N	7/23/2019	Air - Indoor	0.079		0.16		0.82		**310**		0.03	U	0.03	U
Area8-B98-SS-7	Area8-B98-SS-7-190724	N	7/24/2019	Soil Gas - Subslab	72		**280**		0.66	J	45		0.66	U	0.66	U
				Air - Indoor- Corrected	0.05		0.16		0.82		**310**		0.03	U	0.03	U
Area8-B98-IA-8	Area8-B98-IA-8-190723	N	7/23/2019	Air - Indoor	0.21		0.12		0.031	J	13		0.032	U	0.032	U
Area8-B98-SS-8	Area8-B98-SS-8-190724	N	7/24/2019	Soil Gas - Subslab	430		**970**		220		8.3		0.65	U	0.65	U
				Air - Indoor- Corrected	0.181		0.12		0.031	J	12.72		0.032	U	0.032	U
Area8-B98-IA-9	Area8-B98-IA-9-190723	N	7/23/2019	Air - Indoor	0.042		0.065		0.043		22		0.031	U	0.031	U
Area8-B98-SS-9	Area8-B98-SS-9-190724	N	7/24/2019	Soil Gas - Subslab	32		**190**		0.65	U	6.2		0.65	U	0.65	U
				Air - Indoor- Corrected	0.013		0.065		0.043		21.72		0.031	U	0.031	U
Area8-B98-1A-10	Area8-B98-1A-10-190723	N	7/23/2019	Air - Indoor	0.058		0.066		0.067		30		0.036	U	0.036	U
Area8-B98-SS-10	Area8-B98-SS-10-190725	N	7/25/2019	Soil Gas - Subslab	**2300**		**1700**		21		18		3.7	U	3.7	U
				Air - Indoor- Corrected	0.029		0.066		0.067		29.72		0.036	U	0.036	U
Area8-B98-1A-11	Area8-B98-1A-11-190723	N	7/23/2019	Air - Indoor	0.041		0.11		0.067		25		0.033	U	0.033	U
Area8-B98-SS-11	Area8-B98-SS-11-190725	N	7/25/2019	Soil Gas - Subslab	520		**1600**		16		9.5	J	3.5	U	3.5	U
				Air - Indoor- Corrected	0.012		0.11		0.067		24.72		0.033	U	0.033	U
Area8-B98-IA-12	Area8-B98-IA-12-190723	N	7/23/2019	Air - Indoor	0.092		0.15		0.14		**110**		0.031	U	0.031	U
Area8-B98-SS-12	Area8-B98-SS-12-190725	N	7/25/2019	Soil Gas - Subslab	150		**74**		0.4	J	13		0.71	U	0.71	U
				Air - Indoor- Corrected	0.063		0.15		0.14		**109.72**		0.031	U	0.031	U
Area8-B98-IA-13	Area8-B98-IA-13-190723	N	7/23/2019	Air - Indoor	0.041		0.017	J	0.63		**440**		0.031	U	0.031	U
Area8-B98-IA-14	Area8-B98-IA-14-190723	FD	7/23/2019	Air - Indoor	0.042		0.032	J	0.65		**480**		0.034	U	0.034	U
				Air - Indoor- Corrected	0.013		0.032	J	0.65		**479.72**		0.034	U	0.034	U
Area8-OA-2	Area8-OA-2-190723	N	7/23/2019	Air - Outdoor	0.029	J	0.029	U	0.029	U	0.28		0.029	U	0.029	U
Area8-OA-4	Area8-OA-4-190723	FD	7/23/2019	Air - Outdoor	0.028	J	0.029	U	0.029	U	0.28		0.029	U	0.029	U

NOTES:

Bold - exceeds PAL

FD - Field Duplicate

P - Parent

N - Normal (no field duplicate)

U - Undetected at the limit of detection shown

J - The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

Table H-31. Vapor Intrusion Sampling Results at Area 8 - Building 1074

ANALYTE_NAME					Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl chloride
PAL Air - Indoor (µg/m^3)					**40**	**2**	**NE**	**60**	**200**	**2.8**
PAL Soil Gas - Subslab (µg/m3)					**1330**	**66.7**	**NE**	**2000**	**6670**	**93.3**
LOCATION_NAME	**SAMPLE_NAME**	**SAMPLE_TYPE**	**COLLECT_DATE**	**Description**	**Result (µg/m^3)**	**Result (µg/m^3)**	**Result (µg/m^3)**	**Result (µg/m^3)**	**Result (µg/m^3)**	**Result (µg/m^3)**
Apr-19										
Area8-B1074-IA-1	Area8-B1074-IA-1-190415	N	4/15/2019	Air - Indoor	0.083	0.032 J	0.016 U	0.013 U	0.015 U	0.014 U
Area8-B1074-SS-1	Area8-B1074-SS-1-190416	N	4/16/2019	Soil Gas - Subslab	0.55 J	1.4 J	0.29 U	0.29 U	0.29 U	0.22 U
				Air - Indoor- Corrected	0.055 J	0.032 J	0.016 U	0.013 U	0.015 U	0.014 U
Area8-B1074-IA-2	Area8-B1074-IA-2-190415	N	4/15/2019	Air - Indoor	0.08	0.034 J	0.014 U	0.011 U	0.013 U	0.012 U
Area8-B1074-SS-2	Area8-B1074-SS-2-190416	N	4/16/2019	Soil Gas - Subslab	0.82 J	9.8	0.29 U	0.29 U	0.29 U	0.22 U
Area8-B1074-SS-4	Area8-B1074-SS-4-190416	FD	4/16/2019	Soil Gas - Subslab	0.96 J	10	0.29 U	0.29 U	0.29 U	0.22 U
				Air - Indoor- Corrected	0.052 J	0.034 J	0.014 U	0.011 U	0.013 U	0.012 U
Area8-B1074-IA-3	Area8-B1074-IA-3-190415	N	4/15/2019	Air - Indoor	0.083	0.034 J	0.015 U	0.012 U	0.014 U	0.013 U
Area8-B1074-IA-4	Area8-B1074-IA-4-190415	FD	4/15/2019	Air - Indoor	0.094	0.037 J	0.015 U	0.012 U	0.014 U	0.012 U
Area8-B1074-SS-3	Area8-B1074-SS-3-190416	N	4/16/2019	Soil Gas - Subslab	0.57 J	3.8	0.29 U	0.29 U	0.29 U	0.22 U
				Air - Indoor- Corrected	0.066 J	0.037 J	0.015 U	0.012 U	0.014 U	0.013 U
Area8-OA-3	Area8-OA-3-190415	N	4/15/2019	Air - Outdoor	0.028 J	0.013 U	0.014 U	0.011 U	0.013 U	0.011 U
Jul-19										
Area8-B1074-IA-1	Area8-B1074-IA-1-190723	N	7/23/2019	Air - Indoor	0.056	0.028 U	0.028 U	0.36	0.028 U	0.028 U
Area8-B1074-SS-1	Area8-B1074-SS-1-190724	N	7/24/2019	Soil Gas - Subslab	0.63 U	1.7 J	0.63 U	0.63 U	0.63 U	0.63 U
				Air - Indoor- Corrected	0.023 J	0.028 U	0.028 U	0	0.028 U	0.028 U
Area8-B1074-IA-2	Area8-B1074-IA-2-190723	N	7/23/2019	Air - Indoor	0.048	0.028 U	0.028 U	0.31	0.028 U	0.028 U
Area8-B1074-IA-4	Area8-B1074-IA-4-190723	FD	7/23/2019	Air - Indoor	0.043	0.028 U	0.028 U	0.32	0.028 U	0.028 U
Area8-B1074-SS-2	Area8-B1074-SS-2-190724	N	7/24/2019	Soil Gas - Subslab	0.86 J	10 J	0.67 U	0.67 U	0.67 U	0.67 U
Area8-B1074-SS-4	Area8-B1074-SS-4-190724	FD	7/24/2019	Soil Gas - Subslab	3.7	6 J	0.65 U	0.65 U	0.65 U	0.65 U
				Air - Indoor- Corrected	0.015 J	0.028 U	0.028 U	0	0.028 U	0.028 U
Area8-B1074-IA-3	Area8-B1074-IA-3-190723	N	7/23/2019	Air - Indoor	0.039	0.031 U	0.031 U	0.31	0.031 U	0.031 U
Area8-B1074-SS-3	Area8-B1074-SS-3-190724	N	7/24/2019	Soil Gas - Subslab	0.51 J	4.9	0.71 U	0.71 U	0.71 U	0.71 U
				Air - Indoor- Corrected	0.006 J	0.031 U	0.031 U	0	0.031 U	0.031 U
Area8-OA-3	Area8-OA-3-190723	N	7/23/2019	Air - Outdoor	0.033 J	0.029 U	0.029 U	0.44	0.029 U	0.029 U

NOTES:

Bold - exceeds PAL

FD - Field Duplicate

P - Parent

N - Normal (no field duplicate)

U - Undetected at the limit of detection shown

J - The result is an estimated concentration that is less than the LOQ but greater than or equal to the MDL.

APPENDIX I
SITE INSPECTION CHECKLISTS

Fifth Five-Year Review
NBK Keyport
Keyport, WA

SITE INSPECTION CHECKLIST

I. SITE INFORMATION

Site name: Naval Base Kitsap Keyport	**Date of inspection:** September 19, 2019
Location and Region: Keyport, WA; Region 10	**EPA ID:** WA1170023419
Agency, office, or company leading the five-year review: U.S. Navy; Battelle	**Weather/temperature:** ~65 degrees F; clear; slight breeze

Remedy Includes: (Check all that apply)

- ■ Landfill cover/containment
- ■ Access controls
- ■ Land use controls
- ☐ Groundwater pump and treatment
- ☐ Surface water collection and treatement
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls
- ■ Other: OU 1 - landfill cover, access controls, LUCs, phytoremediation, LTM, tide gate upgrade, sediment removal, and contigency actions; OU 2 - access controls, LUCs, LTM, HHRA and ERA (Area 8 only), soil removal (Area 8 only), and contingency actions (Area 8 only).

Attachments:

- ☐ Inspection team roster attached
- ☐ Site map attached

Inspection team roster and site maps are included in Section 4.0 of Report.

II. INTERVIEWS

(Please see Appendix B)

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

■ O&M manual	■ Readily available	■ Up to date	☐ NA
■ As-built drawings	■ Readily available	■ Up to date	☐ NA
■ Maintenance logs	■ Readily available	■ Up to date	☐ NA
■ Health & Safety Plans	■ Readily available	■ Up to date	☐ NA

Remarks: On file at NAVFAC Northwest and reviewed as part of this FYR.

2. **Land Use Controls Inspection Records** ■ Readily available ■ Up to date ☐ NA

Remarks: On file at NAVFAC Northwest and reviewed and presented as part of this FYR.

IV. O&M COSTS

1. **O&M Organization**

- ☐ State in-house
- ☐ PRP in-house
- ☐ Federal Facility in-house
- ☐ Other:
- ☐ Contractor for State
- ☐ Contractor for PRP
- ■ Contractor for Federal Facility

2. **O&M Cost Records**

- ■ Up to date
- ■ Readily available
- ■ Funding mechanism/agreement in place

Original O&M cost estimate: $251,552.00 ☐ Breakdown attached

Total annual cost by year for review period (if available):

From (Date)	To (Date)	(Total cost)	
FY 2015		$187,588.66	☐ Breakdown attached
FY 2016		$219,912.27	☐ Breakdown attached
FY 2017		$145,137.07	☐ Breakdown attached
FY 2018		$239,712.07	☐ Breakdown attached
FY 2019		$204,929.19	☐ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**
Describe costs and reasons: None. O&M costs are primarily due to LTM at OU 1, ranging from 75% to 92% of the total O&M costs per FY.

V. ACCESS AND LAND USE CONTROLS

☐ NA ■ Applicable

A. OU 1

1. **Access to landfill and plantations controlled?** ■ Yes ☐ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information.

2. **Groundwater wells installed?** ☐ Yes ■ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information. Groundwater monitoring wells are installed as part of LTM Program, but no wells have been installed for drinking water or other purposes besides remediation.

3. **Any activities that could interfere with remedy or monitoring?** ☐ Yes ■ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information.

4. **Any permanent workers on landfill?** ☐ Yes ■ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information.

5. **Any digging in landfill without dig permit?** ☐ Yes ■ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information.

6. **Any disturbance to wetlands?** ☐ Yes ■ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information.

B. OU 2

1. **Access to Areas 2 and 8 controlled?** ■ Yes ☐ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information.

2. **Groundwater wells installed?** ☐ Yes ■ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information. Groundwater monitoring wells are installed as part of LTM Program, but no wells have been installed for drinking water or other purposes besides remediation.

3. **Any digging without dig permit?** ☐ Yes ■ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information.

4. **Any land use change?** ☐ Yes ■ No ☐ NA
Remarks: See Section 4.3.1 of FYR Report for additional information. Remains for industrial/commercial land use.

C. Land Use Controls (LUCs)

1. **Implementation and enforcement**
Site conditions imply properly implemented ■ Yes ☐ No ☐ NA
Site conditions imply fully enforced ■ Yes ☐ No ☐ NA

Type of monitoring (e.g., self-reporting, drive by) Drive-by, site walk
Frequency Annual
Responsible party NAVFAC Northwest
Contact Carlotta Cellucci | Remedial Project Manager | (360) 396-1518
Name | *Title* | *Phone no.*

Reporting is up-to-date ■ Yes ☐ No ☐ NA
Specific requirements in decision documents have been met ■ Yes ☐ No ☐ NA
Violations have been reported ☐ Yes ☐ No ■ NA
Other problems or suggestions: See Section 4.3.1 of FYR Report, potential maintenance/repairs to the landfill cover at OU 1. ☐ Report attached

2. **Adequacy**
Remarks: Based on annual inspections and FYR site inspection, LUCs are adequete, being properly implemented and maintained at OU 1 and OU 2.
■ Adequate
☐ Inadequate

VI. REMEDY COMPONENTS

A. Paved Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
Areal extent ~10 x ~10 ft Depth ~1 inch
Remarks: Several ponding/settlement areas observed north of South Plantation or southern portion of Central Landfill, see Appendix J - Photographic Log.

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
Lengths 200+ feet each Widths <1 inch Depths NM
Remarks: Several long cracks transversing east-west through the asphalt pavement in the Central Landfill, see Appendix J - Photographic Log.

3. **Erosion** ☐ Location shown on site map ■ Erosion not evident
Areal extent _____ Depth _____
Remarks:

4. **Holes** ☐ Location shown on site map ■ Holes not evident
Areal extent _____ Depth _____
Remarks:

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
■ Trees/Shrubs (indicate size and locations on a diagram)
Remarks: See phytoremediation below.

6. **Alternative Cover (armored rock, concrete, etc.)** ■ NA
Remarks:

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
Areal extent ~10 x ~20 feet Height ~6 inches
Remarks: Tree roots causing bulges of asphalt pavement outside southeast corner of North Plantation, see Appendix J - Photographic Log.

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
- ☐ Wet areas ☐ Location shown on site map Areal extent ______
- ■ Ponding ☐ Location shown on site map Areal extent Several areas ~10 x ~10 ft each
- ☐ Seeps ☐ Location shown on site map Areal extent ______
- ☐ Soft subgrade ☐ Location shown on site map Areal extent ______

Remarks: Several ponding/settlement areas observed north of South Plantation or southern portion of Central Landfill, see Appendix J - Photographic Log.

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ■ No evidence of slope instability
Areal extent ______
Remarks: ______

10. **Monitoring Wells** (within surface area of landfill)
Remarks: Based on 2018 LTM Report, monitoring wells MW1-14 and MW1-41 need their locks replaced.
- ■ Functioning
- ■ Routinely sampled
- ☐ Needs Maintenance
- ■ Good condition
- ☐ Properly secured/locked
- ☐ Evidence of leakage at penetration

B. Surface Water Structures at Paved Landfill

1. **Siltation** ☐ Location shown on site map ■ No evidence of siltation
Areal extent ______ Depth ______
Remarks: ______

2. **Vegetative Growth** ☐ Location shown on site map ■ Vegetation does not impede flow
Areal extent ______ Type Brush and Alder Trees
Remarks: Several brush and Alder tree penetrations through asphalt pavement along foundations of former buildings in southern portion of Central Landfill, see Appendix J - Photographic Log.

3. **Erosion** ☐ Location shown on site map ■ Erosion not evident
Areal extent ______ Depth ______
Remarks: ______

4. **Discharge Structure** ■ Functioning ☐ NA
Remarks: ______

C. Phytoremediation

1. **Condition of Trees** ☐ Excellent health ☐ Some apparent health stress ■ Severe stress observed

Area of most stress: Both the North and South Plantations are exhibiting stress; however, the North Plantation is exhibiting more stress.

Remarks: Leaf curl and burn observed and low leaf density, see Appendix J - Photographic Log.

2. **Performance Monitoring**

Type of monitoring: Groundwater elevation measurements and monitoring.

Frequency: Groundwater elevation measurements collected every two years; groundwater samples collected concurrently with LTM Program.

Remarks: Various groundwater monitoring wells sampled in 2015, 2016, 2017, 2018, and 2019 (see Appendix C).

3. **Effectiveness**

☐ Data indicate effective uptake and metabolism of COCs
☐ Data indicate not effective
■ Data inconclusive

Remarks: Chlorinated VOC concentrations not decreasing at appreciable rate, but phytoremediation may be controlling contaminant migration. Several investigations have been conducted during this FYR period to better understand site conditions, the CSM - see Sections 4.0, 5.0, and 6.0 of FYR Report.

D. Groundwater, Sediment, and Shellfish Monitoring

1. **Monitoring Wells**

Remarks: Monitoring wells at OU 1 and OU 2 (both Area 2 and Area 8) are sampled regularly, as part of their respective LTM Programs. LTM Program at OU 1 was suspended in 2018, conducting re-characterization activities.

■ Functioning
■ Routinely sampled
☐ Needs Maintenance
■ Good condition
☐ Properly secured/locked
☐ All required wells located

2. **Monitoring**

Types of monitoring being conducted: Groundwater, surface water, seep water, tissue, and sediment at OU 1; groundwater at OU 2 Area 2; and groundwater, seep water, surface water, and sediment at OU 2 Area 8.

Frequency: LTM is conducted on an annual basis or less frequently, depending on media, location, and/or analyte.

Remarks: LTM Program, including media, locations, analytes, and/or frequency have varied during this FYR period.

3. **Data Trends**

Describe results and trends: See Section 4.0 of FYR Report.

E. Other Remedy Components

1. **Soil and Sediment Excavations** ■ Completed ☐ Not Completed

Remarks: OU 1 - Sediment removal; OU 2 Area 8 - Soil excavation.

2. **Contingent Remedial Action Plan** ■ Completed ☐ Not Completed

Remarks: For OU 1, dated February 29, 2012.

3. **Tide Gate Upgrade** ■ Completed ☐ Not Completed

Remarks: Conducted as part of OU 1 remedy.

VII. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

See Section 4.0 (Data Review), 5.0 (Technical Assessment), and 6.0 (Issues and Recommendations) of FYR Report.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

See Section 4.0 (Data Review), 5.0 (Technical Assessment), and 6.0 (Issues and Recommendations) of FYR Report.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

See Section 4.0 (Data Review), 5.0 (Technical Assessment), and 6.0 (Issues and Recommendations) of FYR Report.

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

See Section 4.0 (Data Review), 5.0 (Technical Assessment), and 6.0 (Issues and Recommendations) of FYR Report.

APPENDIX J
SITE INSPECTION PHOTOGRAPHIC LOG

File Name: NBK_K_09-19-19_68.jpg **Date Taken:** September 19, 2019	**Photo 1 - Description:** OU 1, View of tide gate and tide flats from SE towards NW.

File Name: NBK_K_09-19-19_81.jpg **Date Taken:** September 19, 2019	**Photo 2 - Description:** OU 1, View of North Plantation in foreground and South Plantation in distant background.

File Name: NBK_K_09-19-19_78.jpg **Date Taken:** September 19, 2019	**Photo 3 - Description:** OU 1, North Plantation view from N to S.

File Name: NBK_K_09-19-19_57.jpg **Date Taken:** September 19, 2019	**Photo 4 - Description:** OU 1, Leaf curl and burn on trees in South Plantation.

File Name: NBK_K_09-19-19_32.jpg **Date Taken:** September 19, 2019	**Photo 5 - Description:** OU 1, Cracks in asphalt pavement in Central Landfill, view from W to E (1 of 2).

File Name: NBK_K_09-19-19_46.jpg **Date Taken:** September 19, 2019	**Photo 6 - Description:** OU 1, Cracks in asphalt pavement in Central Landfill, view from W to E (2 of 2).

File Name: NBK_K_09-19-19_29.jpg **Date Taken:** September 19, 2019	**Photo 7 - Description:** OU 1, Bulging and cracking of asphalt pavement due to tree roots, outside southeast corner of North Plantation.

File Name: NBK_K_09-19-19_61.jpg **Date Taken:** September 19, 2019	**Photo 8 - Description:** OU 1, Water ponding in southern portion of Central Landfill (1 of 2).

File Name: NBK_K_09-19-19_33.jpg **Date Taken:** September 19, 2019	**Photo 9 - Description:** OU 1, Water ponding in southern portion of Central Landfill (2 of 2).

File Name: NBK_K_09-19-19_43 (1).jpg **Date Taken:** September 19, 2019	**Photo 10 - Description:** OU 1, Water ponding and significant vegetative growth through the asphalt pavement in Central Landfill.

File Name: NBK_K_09-19-19_35.jpg **Date Taken:** September 19, 2019	**Photo 11 - Description:** OU 1, Evidence of tree growth through the asphalt pavement cover of Central Landfill.

File Name: NBK_K_09-19-19_70.jpg **Date Taken:** September 19, 2019	**Photo 12 - Description:** OU 1, Berm/hill at north end of site boundary, in vicinity of elevated PCB concentrations.

File Name: NBK_K_09-19-19_43 (2).jpg **Date Taken:** September 19, 2019	**Photo 13 - Description:** OU 1, View of marsh pond from NNW to SSE.

File Name: NBK_K_09-19-19_14.jpg **Date Taken:** September 19, 2019	**Photo 14 - Description:** OU 2 Area 2, Van Meter Road area, view towards wetlands.

File Name: NBK_K_09-19-19_18.jpg **Date Taken:** September 19, 2019	**Photo 15 - Description:** OU 2 Area 2, Monitoring well 2MW-6, demonstrating elevated vinyl chloride concentrations.

File Name: NBK_K_09-19-19_19.jpg **Date Taken:** September 19, 2019	**Photo 16 - Description:** OU 2 Area 2, Monitoring well 2MW-1 located in SW corner of Former Building 957 Drum Storage Area.

File Name: NBK_K_09-19-19_36.jpg **Date Taken:** September 19, 2019	**Photo 17 - Description:** OU 2 Area 2, Monitoring well MW2-8 located in SE corner of Former Building 957 Drum Storage Area.

File Name: NBK_K_09-19-19_26.jpg **Date Taken:** September 19, 2019	**Photo 18 - Description:** OU 2 Area 2, Monitoring well MW2-8, view towards SE corner of Former Building 957 Drum Storage Area.

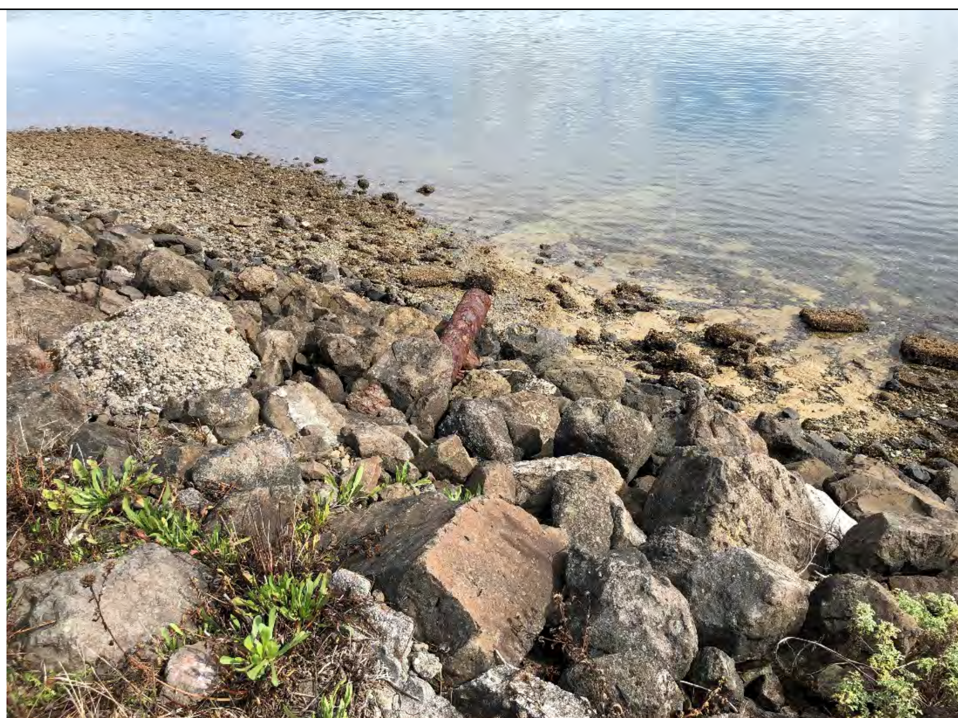
File Name: NBK_K_09-19-19_24.jpg **Date Taken:** September 19, 2019	**Photo 19 - Description:** OU 2 Area 8, View E to W south of Building 98 – pavement intact.

File Name: NBK_K_09-19-19_10.jpg **Date Taken:** September 19, 2019	**Photo 20 - Description:** OU 2 Area 8, Monitoring well MW8-11 and location of Former Building 72 – pavement intact.

File Name: NBK_K_09-19-19_23.jpg **Date Taken:** September 19, 2019	**Photo 21 - Description:** OU 2 Area 8, View of H Street from NNE to SSW, along with evidence of recent utility trench.

File Name: NBK_K_09-19-19_11.jpg **Date Taken:** September 19, 2019	**Photo 22 - Description:** OU 2 Area 8, Recent utility trench box in H Street.

File Name: NBK_K_09-19-19_05.jpg **Date Taken:** September 19, 2019	**Photo 23 - Description:** OU 2 Area 8, View along Groner Street from S to N, along with evidence of recent utility trench.



File Name: NBK_K_09-19-19_12.jpg **Date Taken:** September 19, 2019	**Photo 24 - Description:** OU 2 Area 8, Outfall 03-706 along SE boundary of site.

File Name: NBK_K_09-19-19_03.jpg **Date Taken:** September 19, 2019	**Photo 25 - Description:** OU 2 Area 8, Intertidal zone along SE boundary of site.

File Name: NBK_K_09-19-19_06.jpg **Date Taken:** September 19, 2019	**Photo 26 - Description:** OU 2 Area 8, Offshore view of site from WNW to ESE.

APPENDIX K
RESPONSES TO COMMENTS ON DRAFT DOCUMENT

EPA Review Comments

Date of Review:	9/14/2020			Page 1 of	
Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Harry Craig, Cal Baier-Anderson**	
			Code:	**U.S. EPA**	
Project Number:			Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION* *(Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
1	General	EPA is focusing the Keyport Five Year Review comments on the overall conclusions and protectiveness determinations for the relevant Operable Units, and consistency with applicable guidance on Five Year Reviews rather than detailed editorial comments. Some specific recommendations based on best operating practices for FYRs related to emerging contaminants are listed below in the Specific Comments.	Noted. The Navy is already aware of the best practice recommendations provided by EPA in the original comments file.	N/A
2	General	OU-1: Based on the monitoring data and additional site characterization data conducted between the 2015 and 2020 FYRs, EPA has concluded that the combined phytoremediation and intrinsic bioremediation technologies for OU-1 are not sufficiently effective to ensure that the groundwater at the point of compliance at the edge of the waste management area (landfill) or in surface water consistently meets the OU-1 ROD Remediation Goals (RGs) and there is little evidence that this condition would change in the near future. Significant additional sources of CVOCs were identified in the Central Landfill and the Southern Landfill groundwater, which would be expected to remain in groundwater above the ROD RGs for an extended period of time. In addition, emerging contaminants such as 1,4-dixoane and PFAS have been identified in groundwater, but the full extent of contamination for the surface water/sediment/marine tissue exposure pathway has not been determined, nor has the risks for this new exposure pathway been identified. For these reasons, EPA does not concur with the Navy's proposed Protective Determination of "Short Term Protective" for OU-1 given the OU-1 ROD exceedances for CVOCs in groundwater and surface water, and that full extent of contamination and relevant exposure pathways for emerging contaminants (1,4-dioxane and PFAS) have not been completed. Based on the 2012 EPA FYR Guidance, EPA believes a "Protectiveness Deferred" determination would be more appropriate for OU-1.	The Navy concurs with EPA's statements regarding cVOCs concentration and extent revealed by the additional site characterization data collected during this FYR period. A risk assessment is underway, in collaboration with the Project Team, to determine whether these new data indicate a change in the risk determinations made in the ROD. Unless and until an unacceptable risk is demonstrated, the remedy established in the ROD is considered to be protective, which is why the Navy has selected "short-term protective." Selecting "protectiveness deferred" would only have the effect of putting an unattainable 1-year deadline on the on-going investigation and risk assessment work and delaying project work while a FYR addendum is developed and produced. Selecting "protectiveness deferred" also gives the impression to the public that this FYR has identified previously unknown conditions impacting protectiveness that now must be quickly investigated and addressed. However, the risk assessments will identify conditions impacting protectiveness, if present, investigations are being conducted under a comprehensive and collaborative process with the Project Team, and the path forward is clearly established. The presence or absence of a new~~, unregulated~~ contaminant, such as PFAS, does not impact the protectiveness of the remedy selected in the ROD for established COCs. The CERCLA process now underway for PFAS will result in a determination of	No

EPA Review Comments

Date of Review:	**9/14/2020**		Page 2 of
Project Title: **Draft Fifth Five Year Review, NBK Keyport**	Reviewer:	**Harry Craig, Cal Baier-Anderson**	
	Code:	**U.S. EPA**	
Project Number:	Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION* *(Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
			acceptable or unacceptable risks for PFAS, and the Navy will take any appropriate remedial actions per a future ROD. Also, additional investigations are planned to determine if new pathways/receptors exist at the site; however, no new pathways/receptors have been ~~confirmed at this time~~identified. Therefore at this time there remains no known on-going exposure, so no identified unacceptable risks are known to be currently present at the site Therefore, the Navy respectfully declines to change the protectiveness determination and stands by the determination of "short term protective" for OU 1.	
3	General	OU 2, Area 8 – Based on the monitoring data and additional site characterization conducted between the 2015 and 2020 FYRs, the ecological risk assessment conducted for OU2, Area 8 shows elevated ecological risk in the marine environment due to groundwater discharge of metals. This risk necessitates the need for additional groundwater source controls actions to mitigate groundwater discharges into surface water and sediments. A RI or Feasibility Study of groundwater remediation options has not been initiated, selected, or implemented. In addition, PFAS has been detected in groundwater, but the full extent of contamination for the surface water/sediment/marine tissue exposure pathway has not been determined, nor has the risks for this new exposure pathway been determined. For these reasons, EPA does not concur with the Navy's proposed Protectiveness Determination of "Will Be Protective" for OU-2, Area 8, as no contingency groundwater remedy has been selected or implemented and that the full extent of contamination and relevant exposure pathways for emerging contaminants (PFAS) has not been completed. Based on the 2012 EPA FYR Guidance, EPA believes a "Not Protective" determination would be more appropriate for OU-2, Area 8.	Because the risk assessment shows unacceptable risk at OU 2 Area 8, ~~which kicks in~~triggering groundwater controls under the ROD, and the contingent groundwater control remedy ~~for that~~ has not been selected and is not in progress, the remedy at the site is currently not protective. The ROD includes five remedial options for the contingent remedy, but none are feasible at this site, so the Navy is currently evaluating additional remedial options. The protectiveness statement for OU 2, Area 8 will be changed to "Not Protective."~~The risk and protectiveness implications of the data collected between 2015 and 2020 are discussed and evaluated in Section 5.3 of the FYR and the elevated ecological risk is acknowledged. As documented in Table 2-1 of the FYR, the risk assessment completed during this FYR period is a component of the selected remedy under the OU 2 ROD, as is implementation of contingent remedial actions based on the conclusions of the risk assessment. The supplemental RI now being undertaken by the Navy to select the contingent remedy is therefore part of the on-going effort to fully~~	Yes

EPA Review Comments

Date of Review:	9/14/2020				
Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Harry Craig, Cal Baier-Anderson**	
			Code:	**U.S. EPA**	
Project Number:			Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION* *(Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
			~~implement the original remedy in the OU 2 ROD. When a remedy is in progress and the final remedy is expected to address the RAOs, the FYR concludes that the remedy "will be protective" when the remedy is fully implemented.~~ ~~As indicated above, the presence or absence of a new, unregulated contaminant, such as PFAS, does not impact the protectiveness of the remedy selected in the ROD for established COCs. The CERCLA supplemental RI process now underway will include characterization of the magnitude and extent of PFAS, and the human health and ecological risk assessment addendum planned for 2022 will determine if unacceptable risks from PFAS are present at the site. If an unacceptable risk is identified through the on-going CERCLA process, the Navy will select a remedy in collaboration with the Project Team that, by definition, "will be protective" once implemented.~~ ~~Therefore, the Navy respectfully declines to change the protectiveness determination and stands by the determination of "will be protective" for OU 2 Area 8.~~	

EPA Review Comments

Date of Review: **9/14/2020**			
Project Title: **Draft Fifth Five Year Review, NBK Keyport**	Reviewer:	**Harry Craig, Cal Baier-Anderson**	
	Code:	**U.S. EPA**	
Project Number:	Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION* (*Provide explanation & location of changes as necessary*)	*Agency Concurrence (Yes/No)*
Specific Comments				
1		While the report references PFOA and PFOS, which have a health advisory for drinking water, it does not mention PFBS, which is included in the EPA RSL table. Please include PFBS in all PFAS discussions that mention specific PFAS. Please also confirm that PFBS was not found above screening levels.	~~We will add~~ PFBS will be added to the discussion in Sections 4.2.3, 5.1, ~~and~~ 5.3, and 5.4.2.	Yes
2		It would be helpful to include a map of the location of PFAS sampling, along with a brief rationale for the location of sampling to date. This can be used to support the assertion that PFAS contamination does not affect current protectiveness.	PFAS sampling results for OU 1 are included in Table D-28. OU 1 wells where PFAS samples were collected will be identified on Figures 4-5 and 4-8. A brief discussion of the rationale for the PFAS sampling to date will be added to page 5-3, lines 91-95. PFAS sampling results for OU 2 Area 8 are included in Table G-5. OU 2 Area 8 wells where PFAS samples were collected will be identified on Figure 4-17. A brief discussion of the rationale for the PFAS sampling to date will be added to page 5-5, lines 218-222.	Yes
3		Please include in the text references to the PFAS analytical reports that are the source of data summaries.	Citations of the report containing the OU 1 PFAS data will be added to page 4-28, line 313. Citations of the reports containing the OU 2 Area 8 PFAS data will be added to page 4-48, line 29.	Yes
4		Please include need to complete PFAS PA/SI be included in Issues and Recommendations, with target completion date.	A Sitewide finding and recommendation will be added to Table 6-2 as follows: Finding: PFAS compounds have been detected in groundwater samples from existing monitoring wells at OU 1 and OU 2. Recommendation: Include PFAS in the supplemental remedial investigations currently underway at OU 1 and OU 2 Area 8. The timeline for the supplemental RIs is included on Figure 7-1.	Yes

Ecology Review Comments

Date of Review:	**9/11/2020**				
Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Mahbub Alam, John Evered, Bonnie Brooks**	
			Code:	**Washington State Department of Ecology**	
Project Number:			Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION (Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
General Comments				
1	Protectiveness determination of OU 2 Area 8	Ecology does not agree with the Navy on the protectiveness determination of OU 2 Area 8. The Navy's protectiveness determination "Will Be Protective" is not supported by the EPA guidance (EPA, 2012). "Will Be Protective" determination may be appropriate for remedies where construction activities are ongoing and human and ecological exposures are under control and no unacceptable risks are occurring. In addition, the remedy under construction is anticipated to be protective upon completion (See page 3 of the 2012 EPA guidance memo). For OU 2 Area 8, the Navy concluded – "acute and chronic exposure to accumulated contaminants in sediment pose a current potential hazard to benthic organisms based on the bioassay results/endpoints." [page 5-5]; "Therefore, the ERA concluded that the existing remedy is not protective of ecological receptors."[page 3-8], and it affects current protectiveness [page 6-2]. As such, the Navy identified in the protectiveness statement the need for a supplemental RI and focused FS to address the unacceptable risk to ecological receptors [page 7-1]. Remedial action, which would make the case for "Will Be Protective" comes after selection of remedy (typically memorialized in a ROD amendment). Since the RA is yet to be identified, let alone its implementation, it is premature to state protectiveness determination as "Will Be Protective" at this stage of the process.	Because the risk assessment shows unacceptable risk at OU 2 Area 8, triggering groundwater controls under the ROD, and the contingent groundwater control remedy has not been selected and is not in progress, the remedy at the site is currently not protective. The ROD includes five remedial options for the contingent remedy, but none are feasible at this site, so the Navy is currently evaluating additional remedial options. The protectiveness statement for OU 2, Area 8 will be changed to "Not Protective."~~The EPA guidance from 2012 is misleading. The finding of "will be protective" is typically used when remedy implementation is in progress at the time of a FYR and site conditions have not changed since the time of remedy selection. In these cases, the remedy is expected to be protective once fully implemented. EPA's 2001 guidance, Exhibit 4-5 is slightly more clear in this regard. At any CERCLA site, between the time that a remedy is selected and fully implemented, an unacceptable risk exists (without unacceptable risk, there would be no need for a remedy). Although it is possible to control human exposures during this timeframe through institutional or engineering controls, the ecological risks remain until the remedy can be fully implemented. In these cases, the remedy "will be protective" once fully implemented but is not currently protective during this timeframe because an unacceptable risk exists.~~ ~~As documented in Table 2-1 of the FYR, the risk assessment completed during this FYR period is a component of the selected remedy under the OU 2 ROD, as is implementation of contingent remedial actions based on the conclusions of the risk assessment. The supplemental RI now being undertaken by the Navy in support of contingent remedy selection is therefore part of the on-going effort to fully implement the original remedy in the OU 2 ROD. When a remedy is in progress and the final remedy is expected to address the RAOs, the FYR concludes that the remedy~~	Yes

Ecology Review Comments

Date of Review:	**9/11/2020**			Page 6 of	
Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Mahbub Alam, John Evered, Bonnie Brooks**	
			Code:	**Washington State Department of Ecology**	
Project Number:			Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION (Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
2			~~"will be protective" when the remedy is fully implemented.~~ ~~Given that the OU 2 ROD remains the subject of the FYR and the site is still operating under the specifications in the ROD, the Navy respectfully declines to change the protectiveness determination and stands by the determination of "will be protective" for OU 2 Area 8.~~	
2	Determination of Protectiveness of OU 2 Area 8 as "Not Protective"	Ecology believes the protectiveness determination should be "Not Protective". Per the EPA memo (page 5), this OU falls into these example scenarios, which make the case for "Not Protective" determination. • *Migration of contaminants is uncontrolled and poses an unacceptable risk to human health and the environment,* and • *Potential or actual exposure is clearly present or there is evidence of exposure* The results of the recently completed risk assessment for OU Area 8 provides evidence to the above scenarios. See the references to FYR text in the previous general comment #1. Therefore, Ecology is asking the Navy to reconsider its protectiveness determination in the light of the EPA guidance.	Please see the response to General Comment 1. ~~The Navy respectfully declines to change the protectiveness determination and stands by the determination of "will be protective" for OU 2 Area 8.~~	Yes
3	Protectiveness determination of OU 1	Ecology does not agree with the Navy on the protectiveness determination of OU 1. The Navy's protectiveness determination "Short-Term Protective" is not supported by the EPA guidance (EPA, 2012). In order to be "Short-Term Protective", per the memo, answers to Questions A, B, and C provide sufficient data and documentation to conclude that the "…..the human and ecological exposures are currently under control and no unacceptable risks are occurring."[page 3 of the EPA memo]. Does the Navy have sufficient data to show the following?	The Navy concurs that the additional site characterization data collected during this FYR period warrant a re-evaluation of sites risks. A risk assessment is underway, in collaboration with the Project Team, to determine whether these new data indicate a change in the risk determinations made in the ROD. Unless and until an unacceptable risk is demonstrated, the remedy established in the ROD is considered to be protective, which is why the Navy has selected "short-term protective." The Navy respectfully declines to change the protectiveness	No

Ecology Review Comments

Date of Review:	9/11/2020			Page 7 of	
Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Mahbub Alam, John Evered, Bonnie Brooks**	
			Code:	**Washington State Department of Ecology**	
Project Number:			Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION (Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
		1. There are no unacceptable risk to ecological receptors specifically burrowing animal in the landfill area due to high levels of PCBs and TPH in the shallow soil [page 4-29]. There are no unacceptable risks to aquatic organisms in the marsh pond and specifically in the creek preceding the marsh pond due to the contaminant transport through groundwater and seeps. The Navy stated in Page 5-2, "*Exposure point cVOC concentrations for ecological receptors in surface water in the wetland south of the south plantation are orders of magnitude higher than known at the time of the ROD, so this exposure assumption is no longer valid*". 3. There are no unacceptable risk to Tribal (Suquamish) fishery due to consumption of seafood. The Navy stated in Page 5-2, "*PCB sediment data indicate the potential for adverse risk/effects to human health and the benthic community*". Clearly, the Navy doesn't have sufficient data to conclude that the human and ecological exposures are currently under control and no unacceptable risks are occurring. As shown above, the limited data suggest the opposite; there may be adverse effects to ecological and human receptor. Therefore, Ecology does not agree on "Short-Term Protective" determination.	determination and stands by the determination of "short term protective" for OU 1.	
4	Ecology's Determination of Protectiveness of OU 1 as "Protectiveness Deferred"	Per the EPA guidance memo (page 4), it seems most appropriate for the OU 1 site protectiveness determination as "Protectiveness Deferred". The following example scenarios make the case for this determination. 1. *A new exposure pathway has been identified and*	Selecting "protectiveness deferred" would only have the effect of putting an unachievable 1-year deadline on the on-going investigation and risk assessment work and delaying project work while a FYR addendum is developed and produced. Selecting "protectiveness deferred" also gives the impression to the public that this FYR has identified previously unknown conditions	No

Ecology Review Comments

Date of Review:	9/11/2020			Page 8 of	
Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Mahbub Alam, John Evered, Bonnie Brooks**	
			Code:	**Washington State Department of Ecology**	
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		additional data are required to determine if unacceptable risk is occurring – Exposure to ecological receptors due to high levels of PCBs and TPH in the shallow soil [page 4-29] and there may be other contaminants such as metals, PAH and Dioxins in the area. 2. *An emerging contaminant is present and the current risk has not been evaluated* – Two emerging contaminants (1,4- Dioxane and PFAS) have been detected at the site. Nature and extent of contamination and associated risk (including cumulative) have not been evaluated. 3. *An ecological risk assessment has never been adequately addressed at the site* – The Navy has started the process of updating/encompassing both ecological and human health risk assessment at OU1. 4. *The toxicity value has changed and it is unclear whether the current remedy at a site is protective or whether the selected remedy can achieve the new risk-based cleanup level* – Table 5-2 of the document shows new lower RGs, if established today, for most COCs at OU1. In addition, the Navy answered "no" on Question B (page 5-2). In the light of these instances and other examples/issues that are present at the site (e.g., preliminary findings from the 2019 source investigations); Ecology believes the protectiveness determination for OU 1 should be as "Protectiveness Deferred".	impacting protectiveness that now must be quickly investigated and addressed. In addition: 1. Currently, no new exposure pathways or receptors have been confirmed at OU 1. Ongoing investigations will determine if new pathways may exist and a risk assessment is underway, in collaboration with the Project Team, to determine whether the new data collected to date, in addition to the results of planned work, indicate a change in the risk determinations made in the ROD. Unless and until an unacceptable risk is demonstrated, the remedy established in the ROD is considered to be protective, which is why the Navy has selected "short-term protective." However, the ongoing risk assessments will identify conditions impacting protectiveness, if present, investigations are being conducted under a comprehensive and collaborative process with the Project Team, and the path forward is clearly established. 2. The presence or absence of a new, ~~unregulated~~ contaminant, such as PFAS, and emerging contaminants, such as 1,4-dioxane, do not impact the protectiveness of the remedy selected in the ROD for established COCs. The CERCLA process now underway will include both PFAS and 1,4-dioxane, will result in a determination of acceptable or unacceptable risks for the site, and the Navy will take any appropriate remedial actions per a future ROD. 3. As indicated, the Navy is in the process of conducting a human health and ecological risk assessment for the site under a comprehensive and collaborative process with the Project Team. 4. Additional investigations are planned to determine if new pathways/receptors exist at the site and the ongoing risk assessment will determine if unacceptable risk exists at	

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			the site, based on current toxicological information. However, no new pathways/receptors have been confirmed to date. So, although toxicity values have changed, the site continues to be managed under the existing ROD, and at this time there are no known on-going exposures that were not present at the time the ROD was signed. So, no identified unacceptable risks are known to be currently present at the site. Therefore, the Navy respectfully declines to change the protectiveness determination and stands by the determination of "short term protective" for OU 1.	

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5	Sitewide Protectiveness Statement	The sitewide protectiveness determination as "Will Be Protective" does not seem correct in the light of EPA guidance. As stated before, "Will Be Protective" is referred during "remedy under construction" (Page 3 of the 2012 EPA guidance memo). Since we don't have a selected remedy under new circumstances and there is ongoing unacceptable risk as OU 2 Area 8 and remedy failure at OU 1, Ecology believes the best determination should be "Not Protective".	The sitewide protectiveness determination will be changed to "Not Protective.".~~Please see the response to General Comment 1. The Navy respectfully declines to change the protectiveness determination and stands by the determination of "will be protective" for the site.~~	Yes
6	Oversight Party	Review the oversight party for Keyport. Ecology is the lead regulatory agency for Keyport per the 2000 EPA-Ecology MOA. Ecology was listed as the oversight party in the last fourth FYR (page vi).	The oversight party will be changed to Ecology.	Yes
7	Statement about "Lack of Ecology Comments"	In general, if there is no comment from Ecology, there may be a number of reasons why Ecology did not comment. It may be Ecology did not find anything to comment. It can also mean something was not reviewed. However, it does not indicate approval of an issue. The language in page 3-4, item #2 "The lack of Ecology comments regarding the trend analyses in these reports indicates that the revised approach meets Ecology's guidance and expectations." is not acceptable and needs to change. If there is a question that needs Ecology's input, The Navy is requested to ask Ecology for specific input and not assume Ecology's position on the issue. On this particular "trend analysis" issue, see Ecology's response below in "Specific Comments" section (comment #7).	Understood, thank you. The language in page 3-4, item #2 will be removed.	Yes

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Specific Comments				
1	Page 1-2, Line 57-60, Figure 1-2 Section 2.1.1 Line 48	Figure 1-2 also shows IC only sites not subject to FYR. It is not clear why IC only sites would not be subject to FYR. If there is LUC for site 23, it should be subject to FYR process.	In accordance with CERCLA § 121(c), the NCP, and Navy and EPA guidance, FYRs are performed for sites covered under CERCLA RODs. The IC-only sites at NBK Keyport are not included in either CERCLA ROD.	Yes
2	Figure 1-6	No activities/events are shown from 2010 to 2020, which is misleading especially a lot of activities happened in the last FYR. The Figure should be updated with major efforts/projects happened during this time.	Figure 1-6 is depicting CERCLA milestone events for the site, not comprehensively documenting all site activities. No changes are proposed.	Yes
3	Page 2-2,	Last bullet states the upgraded asphalt landfill cover will prevent exposure to vapors. Unless there was something other than the asphalt placed there, the asphalt alone would not prevent exposure to vapors, only direct contact via ingestion or dermal contact. Can you please clarify what is meant by this or delete the reference to vapors.	The reference to vapors will be deleted.	Yes
4	Page 2-6, Section 2.1.3 Line 263-265	What is the depth of screen for the PUD well and the Navy supply well #5? What are the decision criteria for the CRA monitoring plan?	The PUD well is screened using a V-slot stainless steel screen from 702 to 741 feet below ground surface (bgs). Navy Well 5 is constructed with three slotted-screen intervals in the depth range 725 feet bgs to 802 feet bgs. The decision criteria in the CRA plan consist of concentration values for specific chemicals in specific wells triggering a tiered series of actions. A reference to the 2003 CRA plan will be added to this portion of the FYR text.	Yes
5	Page 2-12, Section 2.2.2 Lines 456 to 464	Add a figure depicting what wells were included in the tidal lag study USGS conducted and refer to it in the text of this section.	Wells included in the tidal lag study will be identified on existing Figure 2-3, and a callout to that figure will be added to this portion of the text.	Yes
6	Page 3-4 Table 3-2	*"The trend analysis presented in OU 1 LTM reports prepared during this FYR period utilize a value of half of the reporting limit when analytes are not detected. The spring 2016 LTM report cites*	~~This statement is from Section 7.1, the last sentence of the first paragraph, on page 7-1 of the *Final Spring 2016 LTM Report, Operable Unit 1*, dated August 22, 2017. Note that revising this~~	Yes

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		Ecology guidance as the basis for this approach." – This does not seem correct. Cite that section of the report. Artificial substitution is not acceptable as it produces invasive data, results in poor estimates and incorrect statistical tests and may depict a trend that is not present.	~~approach in collaboration with Ecology is included as the first finding for OU 1 in Table 6-2.~~ The Ecology guidance was cited in error in the last sentence of the first paragraph, on page 7-1 of the *Final Spring 2016 LTM Report, Operable Unit 1*, dated August 22, 2017. The statistical approach for depicting contaminant trends in LTM reports still needs to be addressed. Revising this approach in collaboration with Ecology is included as the first finding for OU 1 in Table 6-2 and the FYR will be updated to indicate that this recommendation from the Fourth FYR has not been completed.	
7	Page 3-4 Table 3-2	"*The lack of Ecology comments regarding the trend analyses in these reports indicates that the revised approach meets Ecology's guidance and expectations.*" - This is incorrect. Ecology comments on 2018 LTM report for OU 2 Area 8 asked the Navy to do statistical trend analysis. See appendix F of Final 2018 LTM report. Ecology again commented on 2019 LTM report (Ecology comment email dated 8/18/2020). I was not personally aware of this recommendation in the previous 4th FYR during commenting; otherwise, I would have mentioned this recommendation in the comments.	This sentence will be removed and the following sentence will replace it: "The Navy is currently revising the LTM QAPP in collaboration with the project team. Trend analyses methods will be revised to a method approved by Ecology during this process."	Yes
8	Page 3-6 Table 3-2	Were the PCB data collected in 2019 outside of the review window? If so state here. How does this reconcile with the PCBs sediment sampling results described on page 4-10, that describe an SQS exceedance in the 2019 sampling.	The phrase "outside of the data review window for this FYR" will be added to the last sentence of the Status text for item 6. The 2019 SQS exceedance noted on page 4-10 is from a different station than the exceedance in 2017. As will be discussed in the forthcoming report covering the 2019 additional investigation work, the variability in PCB concentrations in sediment from the same stations at different times continues to point to a strong spatial variability in sediment PCB concentration, confounding efforts to establish meaningful temporal trends or reliable mean exposure point concentrations for use in risk assessment. As discussed in the meeting held on 10/1/2020, the method of sediment sampling for PCBs will be changed to ISM to allow for better, more repeatable sample data.	Yes

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9	Page 3-6 Table 3-2	MA19 could not be found on the figure 2-1. Which Figure shows MA19?	MA19 is shown on Figure 4-10, which is specific to the PCB congener results. The specific station names will be removed from Table 3-2, to reduce confusion. Specific data discussions are provided in Section 4.	Yes
10	Page 3-7 Table 3-2	Remove the word "conservative" from the 2nd paragraph when speaking of VI screening levels.	The Navy's extensive analysis of building-specific attenuation factors in the Area 8 VI study report provides ample evidence that the default attenuation factors, and therefore the default screening levels, are indeed conservative for this site. The Navy stands by the use of the qualifier "conservative" in this case.	Yes
11	Page 4-6 Figure 4-1	Arrows indicating groundwater flow are difficult to see since they are the same color as groundwater elevation contours. Change them to a contrasting color that is easier to pick out? Also, show flow direction in southern plantation. In addition, clarify in the Figure title that it is shallow groundwater flow. Ecology's understanding is that the deeper groundwater moves in the northwest direction.	The arrow colors will be changed as suggested, and a flow direction arrow will be added in the South Plantation. The figure title will be changed to "OU 1 Shallow Groundwater Potentiometric Head Contours and Groundwater Flow September 2018."	Yes
12	Page 4-5 Section 4.2.1 Line 37	FYR text states deeper upper aquifer groundwater flow is to northwest beneath landfill. Earlier text states shallow groundwater at the north end of the landfill is northwest towards tide flats and at south of landfill is to west to southwest towards the marsh pond. Provide another figure that depicts groundwater flow in the deeper aquifer and provide additional clarification in the text.	An arrow depicting deeper groundwater flow to the northwest will be added to Figure 4-1. The following additional explanatory text will be added starting on Line 38, page 4-5. "This hydrogeological model of multiple superimposed groundwater flow components within an aquifer system is consistent with the standard models of flow systems within regional drainage basins (see Figure 6.4, Fetter, 1980). At sites like OU 1 with substantial local relief and high annual precipitation, local groundwater flow systems become superimposed on the regional flow system. Local, near-surface flow systems are driven by recharge at local topographic highs and discharge at topographic lows. At OU 1, the effect of this local flow system is movement of shallow groundwater and contaminants from the landfill footprint into adjacent surface water, with groundwater flow vectors roughly normal to the flowline of Marsh Creek and the ephemeral stream	Yes

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			south of the South Plantation. Because the flowlines of these surface water features vary from east-west to south-north, very localized groundwater flow vectors are observed, ranging from nearly due south in the eastern portion of the South Plantation to due west across much of the Central Landfill. Deeper in the aquifer, below the influence of local topographic relief, the regional flow direction to the northwest dominates, probably enhanced by paleotidal and paleofluvial channeling in the Olympia Formation."	
13	Page 4-7 Lines 63 to 64	Include the proper chemical names for each contaminant. Some are listed with the proper name and the abbreviated name, but some are only listed with the abbreviated name.	This represents the typical editorial practice of defining abbreviations and acronyms upon first use in the text. Abbreviations are used here when the chemical has already been used in the text previously and the abbreviation defined. In cases where this is the first use of the chemical name in text, the full name is used and the abbreviation identified.	Yes

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14	Pages 4-7 to4-8 |Section 4.2.1 Figure 4-2	Figure 4-2 contains a lot of information and is difficult to interpret, but does provide valuable information. Create multiple figures for each contaminant/group of contaminants instead of having them all listed on one figure.	This figure is meant to convey the overall data generated through the LTM program during the review period. More recent and comprehensive data collected through the additional investigations performed in 2017 and 2019 are not included, and therefore meaningful interpretations of contaminant extent or trends cannot be derived from this figure. Therefore, the Navy believes this summary depiction of LTM data meets the needs of the FYR report and respectfully declines to prepare additional, more focused depictions of these data.	Yes
15	Page 4-8 Figure 4-2	The Vinyl chloride (detected above RG) in MW1-39 is at least two orders of magnitude higher than MW1-38. Both wells seemed to be located nearby (may be less than 10 feet). It is interesting to note the opposite for 1,4- dioxane where concentration in MW1-38 is higher than MW1-39. What are the screen interval of these wells? Also, note that these wells are outside the base boundary and the Vinyl chloride and 1,4-dioxane are detected above RG in these wells.	This is a well pair with one shallow screen (MW1-39, screened from 27.5 ft bgs to 32.5 feet bgs) and one deep screen (MW1-38, screened from 44 feet bgs to 49 feet bgs). These wells have been the subject of substantial discussion over the years, including detailed assessment by USGS (2002). Standard transport conceptual site models and numeric models do not account for the patterns of contamination in these two wells. The Navy is currently using environmental sequence stratigraphy and plans to use geophysics (to map stratigraphy beneath the tide flats and the temporal variation in the saltwater/freshwater interface) to better understand the transport pathway from the site to these wells.	Yes
16	Page 4-9 Section 4.2.1 Line 123	Clarify what monitoring wells were sampled for 1,4-dioxane by creating individual figures for each contaminant as suggested in an earlier comment and refer to the figure instead of writing them all out in the text. Doing this for all contaminants would make the report more concise and make it easier to interpret the data.	This discussion is specific to the sampling performed under the LTM program, which is why Figure 4-2 is referenced in particular. Wells with results for 1,4-dioxane from the LTM program are shown on Figure 4-2. Wells shown with an "NS" result indicate that these wells were not samples for 1,4-dioxane. The 1,4-dioxane results for samples collected from the additional investigation conducted in 2017 will be added to Figures 4-5 and 4-8. Initial results for 1,4-dioxane sampling in 2019 are contoured on Figure 4-12. The Navy believes that it is more appropriate to include the chemical-specific maps requested, along with appropriate data interpretation, in the upcoming Source Investigation report documenting the results of the 2019 investigation. Therefore, the Navy respectfully declines to	Yes

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			produce additional chemical-specific maps for this FYR.	
17	Page 4-9 Section 4.2.1 Line 131	Clarify what monitoring wells and piezometers were sampled for PCBs (MW1-02, MW1-14, PI-01) by creating individual figures for each contaminant as suggested in an earlier comment and refer to the figure instead of writing them all out in the text. Doing this for all contaminants would make the report more concise and make it easier to interpret the data. For PCBs, include both Aroclor and congener data on the same figure.	PCBs as Aroclors and as summed congeners will be added to Figure 4-2 for the three wells analyzed for PCBs as part of the LTM program.	Yes
18	Pages 4-7 to 4-63 Sections 4.2.1, 4.2.2, 4.2.3	Include the specific table number where the data referred to is located in addition to referring to the appendix C, D, E, F, G and H. It is very difficult to find the specific data. In general, the data tables should be presented in the main text, not just the summary statistics. For PCBs/Dioxins and Furans, the total summation of congeners should be provided in the main text but the individual congener results can be in the appendix.	The specific appendix table number callouts will be added to the text. Unfortunately, placing the data tables from the appendices into the body of the report would decrease readability, due to the number of the tables. Therefore, the Navy respectfully declines to place the data tables into the text.	Yes
19	Page 4-9 Section 4.2.1 Line 140	Make a separate figure that only includes surface water and seep samples. This will make it easier to evaluate the data. Figure 2-1 which includes all of the samples can also be referenced as well.	The Navy will create the requested figure, showing the surface water and seep data from the LTM program during this FYR period.	Yes
20	Page 4-10 Section 4.2.1 Lines 143 to 146	Provide a note that these RGs were set at the time of ROD and are no longer current (refer to Table 5-2 in section 5.4, as appropriate). In addition, there are detections of contaminants in surface water without any RGs. Clarify this in the text. These detections should be considered in the context of potential risk in the ongoing risk assessment.	As a point of clarification, the RGs have not changed, but the underlying ARAR values supporting the RGs selected in the ROD have changed since the time of the ROD. A sentence will be added to state, "Note that the ARAR values upon which these RGs were based have changed since the time of the ROD. See Section 5.4 for additional explanation." The FYR evaluates the ROD and the ROD-selected COCs. However, all detected chemicals at the site will be included in the ongoing risk assessment.	Yes

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21	Page 4-17 Section 4.2.1 Lines 54 to 65	It appears from porewater data contamination extends to the other side of the creek (see stations PW1-3, PW1-4 in Figure 4-6). Is there an explanation regarding this data? Is this discussed later in the report?	In the vicinity of these porewater samples there is no clearly defined flow channel, but rather a low, broad area of saturated wetland sediment. The flow channel shown starting to the west of the area of these sample locations is ephemeral, only flowing with seasonal precipitation. Contaminated groundwater appears to be daylighting in saturated sediment in this area. Additional sample locations from 2019 delimit the lateral extent of this daylighting. The Navy proposes no changes to the FYR based on this comment.	Yes
22	Page 4-23 Section 4.2.1 Lines 169 to 176	PCBs results in sediment were compared to sediment cleanup objectives (ARAR). However, PCB results in groundwater, porewater, and surface water were not compared to RGs or ARARs. Note that all surface water PCB results failed to meet Washington's surface water quality standards for protection of human health (ARAR for the ROD).	The decision rules established for PCBs in the 2017 investigation were focused on establishing current conditions with regard to PCBs in sediment, and the decision rules for the 2019 investigation expanded to include investigating a potential PCB source area. The report covering the 2019 data collection will include a comparison of the PCB results in aqueous media to the ROD RGs and current ARARs, and these data will be included in the ongoing risk assessment. A recommendation will be added to compare future surface water data to the current ARAR for human health exposure pathways (including incidental ingestion and fin-fish and shellfish consumption), given that the concentration can now be achieved by the laboratories using congener analysis.	Yes
23	Page 4-28 Section 4.2.1 Lines 279 to 319	When some details regarding the 2019 sampling event are provided, it would be helpful to have figures with sample locations and data similar to what was suggested in the comment regarding pages 4-7 to 4-8, Section 4.2.1, Figure 4-2. Create multiple figures for each contaminant/group of contaminants instead of having them all listed on one figure. If the data has been validated, they can be presented. Ecology understands these data have not been incorporated into a report yet.	Thank you for these suggestions. The requested figures will be produced during preparation of the data report covering the 2019 data collection event. The validated 2019 data were provided to Ecology on August 13, 2020.	Yes

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24	Page 4-29 Section 4.2.1 Lines 347 to 350	Given degradation of Aroclors, it is very difficult to measure or fingerprint PCBs as Aroclor in water samples (e.g., groundwater or surface water) unless the concentration is significantly high. "PCBs as congeners were detected" provide the justification that such analysis is warranted, specifically in the water phase.	Understood.	N/A
25	Page 4-29 Section 4.2.1 Lines 355 to 359	It should be noted that PAL for PCBs in groundwater was based on groundwater RGs, however, if there is a groundwater to surface water pathway, surface water quality must also be protected in addition to sediment. The data so far shows transport of PCBs may be impacting sediment quality above benthic SCO only in certain locations but sediment quality to protect human health is also affected because these sediment results are above Puget sound natural background. In addition, exceedance of surface water quality standards for human health protection (an ARAR of ROD) is more widespread than previously understood. Add surface water PCB data to the analysis and discuss in the CSM for PCBs.	The requested analysis of surface water PCB data will be included in the CSM update being prepared based on the 2019 data and will be included in the risk assessment.	Yes
26	Page 4-33 Section 4.2.1 Lines 469 to 488 and associated table	Create a figure of the wells listed in the table coded to reflect the different categories in the table.	The requested figure will be added. Please see the table at the end of these responses for a cross walk between figure numbers and titles in the Draft and Draft Final versions of the FYR.	Yes
27	Page 4-35 Section 4.2.1 Lines 487 to 489	I think there may be some words missing from this sentence.	This sentence will be revised to read, "Sampling schedules for the six wells where groundwater levels were only minimally influenced by tides need not be constrained by tidal conditions."	Yes
28	Page 4-35 Section 4.2.1 Lines 495 to 498	Was this also the case for immediately influenced wells such as MW1-38 and MW1-39?	Based on the currently available data, yes. However, this recommendation may change after additional specific conductance data are evaluated. The Navy proposes no change to the FYR based on this comment.	Yes

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29	Page 4-35 Section 4.2.2 Line 517-523	Remedial goal for vinyl chloride is 0.5 µg/L in OU 1. In 2012, the RG in OU 2 Area 2 was updated to 0.029 µg/L based on MTCA method B update. What was the process to update the RG in OU 2 Area 2? Why wasn't the RG for vinyl chloride updated for OU 1, which is still based on PQL (current PQL is lower). Note RG for vinyl chloride in surface water has also changed to 0.02 ug/L in freshwater.	Because the RGs can only be changed through an ESD or ROD amendment, the FYRs typically carefully weigh the value of going through that process each time numeric standards in ARARs change, versus tracking the latest ARARs through the FYR and LTM process. FYRs typically recommend executing an ESD or ROD amendment only if a CERCLA milestone is imminent (e.g., deciding to cease monitoring for a COC or remove a LUC). In the case of vinyl chloride, the third FYR recommended using a SIM analysis for this analyte at OU 2 Area 2 because the detected concentrations were dropping below the RG but remained above the current ARAR value. This was to ensure that any decisions (such as cessation of monitoring) were based on data that could be compared to the most recent numeric standard, regardless of the RG. At OU 1, the third FYR made the following observation, "For vinyl chloride, because the majority of the groundwater data still significantly exceeds even the ROD value (Table 6-1), concerns about achieving lower PQLs are premature." Based on this observation, the third FYR did not recommend running SIM analysis to achieve a lower reporting limit for OU 1 samples. ~~The RGs for OU 1 will be reviewed and updated as appropriate following the completion of the risk assessment update and any subsequent ROD amendment.~~ A recommendation will be added to compare vinyl chloride results to current ARARs, including analyzing surface water samples for vinyl chloride using ~~a~~ SIM analysis to achieve a lower reporting limit.	Yes
30	Page 4-41 Section 4.2.3 Page 5-14 Section 5.4.1	The following are data gaps for OU 2 Area 8: The ROD did not establish a RG for TCE degradation product vinyl chloride (VC) and it was not measured in the LTM. Ecology has pointed this out in the past and the Navy had agreed to do sampling for VC. Although this is okay for LTM but it does not establish a RG for the decision documents, such as ROD. Add a recommendation in this FYR to	In Table 6-2, on page 6-4, the first finding for OU 2, Area 8 will be revised to read, "During this FYR period, several COCs (including 1,1-DCE, 1,1,1-TCA, arsenic, lead, mercury, thallium, and zinc) in groundwater, seep water, and surface water samples were consistently, or more frequently than not, detected below their RGs. In addition, no RG was established in the ROD for	Yes

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		characterize VC in the LTM program and establish a RG, as necessary, when the Navy amends the ROD for groundwater control as part of contingent remedial action.	vinyl chloride, which is a breakdown product of the chlorinated solvent COCs present at the site." This change will ensure that vinyl chloride is one of the chemicals that should be considered for addition to the list of COCs as part of the supplemental RI. With regard to surface water, a recommendation will be ~~added~~included to add vinyl chloride to the LTM analyte list and compare results to current ARARs to evaluate the magnitude and extent of this contaminant at the site.	
31	Page 4-42 Section 4.2.3 Table 4-3	Add the RGs to this table along with the basis of the RG.	These additions will be made to the table.	Yes
32	Page 4-45 Section 4.2.3 Table 4-4	Add the RGs to this table along with the basis of the RG.	These additions will be made to the table.	Yes
33	Page 2-11, Line 428-431; Page 4-57 Section 4.2.3 Lines 1 to 2	The SMS does not explicitly require the collection of bioassay samples if health numbers are exceeded, rather allows for the override of samples that exceed benthic criteria, but pass bioassays. Bioassays were requested by Ecology due to the repeated assertion that AVS/SEM is not a good predictor of bioavailability.	The sentence on Page 4-57, lines 1 to 2 will be revised to read, "Ecology's SMS regulation (i.e., an ARAR under the OU 2 ROD) allows the use of bioassay analysis in cases where chemical concentrations in sediment samples exceed the published numeric standards. Samples that pass the bioassay analysis are considered to not pose an unacceptable risk to benthic organisms." A similar change will be made to the equivalent text on page 2-11.	Yes
34	Page 5-1 Section 5.0 Table 5-1 Page 5-3 Section 5.1 Line 87 to 89	OU 1 Question C. Ecology believes the answer to this Question should be "yes" due to detection of PFAS in site groundwater. Even though the limited data show PFOS and PFOA were below EPA human health advisory levels (LHA) for the drinking water pathway, there is significant uncertainty associated with this evaluation. The evaluation lacks the following information: • nature and extent of the contamination • effect on ecological receptors • effect on and seafood consumption pathway • presence of other PFAS compounds • cumulative risks from combined exposure to all PFAS as well as from other COCs	The Navy's position is that the presence or absence of a new~~,~~ ~~unregulated~~ contaminant, such as PFAS, does not impact the protectiveness of the remedy selected in the ROD for established COCs. The CERCLA process now underway will include PFAS and will support the risk assessment addendum planned for 2022, which will result in a determination of acceptable or unacceptable risks for the site. The Navy will then take any appropriate remedial actions per a future negotiated ROD. Additional ~~discussion~~text will be added to the PFAS discussion in Section 5.4.2.4, which supports the response to Question B, regarding what is known and unknown about PFAS nature and extent, migration pathways, exposure, and effects on receptors. The	Yes

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		Ecology believes the best answer should be "yes".	discussion will refer to the CERCLA process now underway, which will be addressing these open questions. Please sSee also the response to tThe Suquamish Tribe's Comment #6.	
35	Page 5-1 Section 5.0 Table 5-1 Page 5-3 Section 5.2 Line 123 to 124	OU 2 Area 2 Question B. Ecology believes the answer to this Question should be "no" since the cleanup level for vinyl chloride has changed since the issuance of ROD (See Table 5-3).	The answer to Question B will be changed to "no." In addition, the OU 2, Area 2 protectiveness will be changed to "Short-Term Protective." The Navy plans to complete a thorough review of current cleanup levels and to proposed updated cleanup levels for discussion and approval by the stakeholders in the process of updating the existing RODs. This process may be expedited by the production of an Explanation of Significant Differences (ESD), if consensus can be reached with the project team regarding the limits of the ESD. ~~The Navy respectfully disagrees. Although ARAR values have changed, ROD RGs remain the same. ROD RGs can only be changed through the use of an ESD or ROD amendment. Therefore, as with the Fourth FYR, the answer to Question B is yes, because the ARARs, exposure assumptions, toxicity data, and RAOs are still valid and protective of human health and the environment. For vinyl chloride, the ROD RG was the MTCA Method B value of 0.023 µg/L. However, in the past, analytical methods could not achieve this value and the PQL of 1 µg/L was used. The current MTCA Method B value has increased slightly to 0.029 µg/L. Using Ecology's methodology to assess the protectiveness, the risk of the vinyl chloride PQL of 1 is 3 x 10-5, which is just above the ROD target risk goals and within EPA's target risk range of 10-4 and 10-6. Laboratories can currently achieve a PQL of 0.02 µg/L using EPA Method 8260C SIM analysis and can currently achieve the ROD RG value and will be recommended.~~	Yes
36	Page 5-1 Section 5.0 Table 5-1 Page 5-5	OU 2 Area 8 Question C. Ecology believes the answer to this Question should be "yes" due to the detection of PFAS compounds in the site groundwater. 2018 data show, PFOS and PFOA were	The Navy's position is that that the presence or absence of a new ~~, unregulated~~ contaminant, such as PFAS, does not impact the protectiveness of the remedy selected in the ROD for established	Yes?

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	Section 5.3 Line 214 to 216	above EPA LHA, but 2019 data show they were below LHA. However, the drinking water pathway is not the only concern for PFAS; there are many unknowns in this regard as explained in previous comment # 34 and copied in below. There is significant uncertainty associated with this evaluation. The evaluation lacks the following information: • nature and extent of the contamination • effect on ecological receptors • effect on and seafood consumption pathway • presence of other PFAS compounds • cumulative risks from combined exposure to all PFAS as well as from other COCs Ecology believes the best answer should be “yes”.	COCs. The CERCLA process now underway will include PFAS and will support the risk assessment addendum planned for 2022, which will result in a determination of acceptable or unacceptable risks for the site. The Navy will then take any appropriate remedial actions per a future negotiated ROD.	
37	Page 5-6 Section 5.4.1	Since the cleanup levels in CLARC have changed since the last FYR, they should be added as a bullet point. Note CLARC is a compendium of technical information related to calculating cleanup levels under Washington's Cleanup Rule, MTCA.	The changes to the CLARC cleanup levels will be added as a bullet point.	Yes
38	Page 5-6 Section 5.4.1 Lines 257 - 260	Include the SMS as well as MTCA that allows for the use of background and PQL.	We will also reference the SMS in this paragraph.	Yes

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39	Page 5-7 Section 5.4.1 Line 286 to 293	First, whenever there is a mention of CERCLA acceptable risk range (10^{-4} to 10^{-6}), there must be a mention of the ARAR of MTCA risk range (10^{-5} to 10^{-6}) and whether that is met. Again, there are limitations of using CERCLA 10^{-4} risk (e.g., it may not consider subsistence users) and MTCA 10^{-5} risk. Second, there should be a recommendation in this FYR to address the proper RG for vinyl chloride. It needs to account for new levels, the surface water pathway, and PQL. It appears the PQL cannot be used as a basis for a RG anymore.	The MTCA risk range will be added throughout the document. A recommendation will be added to compare any vinyl chloride concentrations obtained to the updated ARAR for vinyl chloride and use an appropriate method to achieve that ARAR. The RG for vinyl chloride will be included as part of the Navy's plans to complete a thorough review of current cleanup levels and to proposed updated cleanup levels for discussion and approval by the stakeholders in the process of updating the existing RODs. This process may be expedited by the production of an Explanation of Significant Differences (ESD), if consensus can be reached with the project team regarding the limits of the ESD.the expected ESDs and/or the upcoming ROD amendments planned for both OU 1 and OU 2 as a result of the additional ongoing investigations wills. However, in the interim, the Navy will compare any vinyl chloride concentrations obtained to the updated ARAR for vinyl chloride and use an appropriate analytical method to achieve that ARAR concentration.	Yes
40	Page 5-8 Table 5-2	Ecology does not agree with the PQL for PCBs as listed in the Table 5-2. First, this PQL was based on PCB analyzed as Aroclor and Labs can currently achieve lower PQL as shown in column 6. Second, much lower PQL can be obtained if PCBs are analyzed with method 1668. Since the surface water criteria (ARAR) as shown in column 11 and 12 are very low, there is a need to use method 1668 to verify compliance. It may be possible that the compliance for total PCBs would default to PQL but that PQL would be orders of magnitude lower than what was shown in column 13. Also, note the discrepancy of column 6 and 13 about PCB PQL. Therefore, the comment "No" in column 14 is not valid anymore. Revise the PQL for PCBs or make a recommendation in the FYR to develop a PQL for total PCBs based on method 1668 analysis.	The PQL in Table 5-2 will be revised to reflect a PQL for total PCB congeners and the comment "No" will be changed to "Yes."	Yes

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		Ecology is willing to provide guidance to calculate a PQL for total PCB congeners.		
41	Page 5-9, Section 5.4.1 Line 6 to 14	Regardless of the outcome of Federal NTR changes, the TCE criteria (either 0.86 or 0.7 ug/L) would be lower than MTCA method B value of 13 ug/L. Note that the current August 2020 MTCA method B number for TCE has changed to 4.9 ug/L based on new toxicity data; the 13 ug/L was based on old toxicity data.	Understood. As noted on Line 30, TCE in surface water continues to exceed even the higher RG value, so the revised lower ARAR value does not affect current decision making at the site.	Yes.
42		Ecology appreciates Navy's thoughts on PCBs RG and PQL. However, as stated in specific comment # 40 , Ecology believes the analysis of PCBs as congeners by method 1668 is more accurate and representative of total PCBs than Aroclor analysis which is based on identification of a particular Aroclor signature which may have changed due to environmental degradation. Therefore, if there are non-detects in the Aroclor analysis, method 1668 congener analysis must be conducted to determine compliance.	The Navy stands by the assertion in the text that using a method to achieve a lower PQL is premature at this time because PCB concentrations remain above the RG. Once concentrations reduce below the PQL, or an ESD or ROD amendment is prepared, the RG can be changed to a total congeners RG and the analytical method revised to meet the new RG.A recommendation will be added to compare future surface water data to the current ARAR, given that the concentration can now be achieved by the laboratories using congener analysis.	Yes
43		Ecology does not agree with the short term protectiveness argument as presented in the section. See general comment #3. Revise the language per EPA guidance memo (EPA, 2012) on protectiveness determination.	The Navy respectfully declines to change the protectiveness determination and stands by the protectiveness statement, as articulate in the response to General Comment 3.	No
44		As explained in comment # 40, Ecology believes when there is a non- detect in Aroclor data, that indicates a specific Aroclor signature is absent. There may still be PCB congeners present that do not form a specific signature of Aroclor due to environmental degradation. Therefore, PCB congener analysis by method 1668 is necessary to verify compliance.	For tissue, the Aroclor analysis provides reporting limits that are below the RG. and therefore congener analysis is not required to achieve a lower reporting limit. The Navy is currently performing congener analysis in tissue and concentrations are being compared to the revised ARAR. The revised ARAR for PCBs will be included in the Navy's plans to complete a thorough review of current cleanup levels and to proposed updated cleanup levels for discussion and approval by the stakeholders in the process of updating the existing RODs. This process may be expedited by the production of an Explanation of Significant Differences (ESD), if consensus can be reached with the project team regarding the limits of the ESD.	Yes

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45	Page 5-11 Section 5.4.1 Line 134 to 135	It is correct that the revised RG cannot be compared with historical data as data was obtained through Aroclor analysis. Ecology believes compliance can be measured with EPA method 1668, which has quantitation level at parts per trillion level. The revised RG is in ppb level.	Understood.	N/A
46	Page 5-12 Section 5.4.1 Line 156 to 161	Was surface water pathway a concern during RI/ROD for OU 2 Area 2? If data were non-detect due to analytical method or the surface water RG for both TCE and vinyl chloride was quite high at the time of ROD and therefore, the surface water pathway was not a concern, then the current situation warrants checking the surface water pathway. Include this investigation in the proposed data gap investigation and corresponding recommendation in this FYR.	The risk assessment for OU 2, Area 2 considered a future use scenario of human recreational exposure to surface water in the lagoon and found risks to be acceptable (Table 7-3 of the OU 2 ROD). No unacceptable ecological risks were found for exposures in the creek at the site or the lagoon downstream. If the data gaps investigation shows a complete pathway from groundwater to surface water, then surface water will also be investigated.	Yes
47	Page 5-12 Section 5.4.1 Line 175 to 181	What was the decision/path forward regarding hexavalent chromium value and question on protectiveness? What did the Navy do about this?	No action was or is required because the selected remedy, LUCs, prevents residential exposure regardless of the lower ARAR value. Action would be needed in the future if the land was to be converted to residential land use, and a process is in place through LUC management to trigger such action. This explanation will be included in the FYR text for clarity.	Yes
48	Page 5-15 Section 5.4.1 Lines 53-55	See comment 33 above. Bioassays were collected to assess bioavailability of contaminants in areas with benthic exceedances.	The text will be revised in a manner similar to that described in the response to Comment 33.	Yes
49	Page 6-3 Section 6.1 Table 6-2	Mention in the first recommendation that the risk level $2x10^{-5}$ exceeds MTCA allowable risk.	We will add this notation to the Finding.	Yes
50	Page 6-3 Section 6.1 Table 6-2	Update the second recommendation based on Ecology's general and specific comments on the trend analysis (General comment #7, specific comment # 6 and #7).	This recommendation will be revised to read, "In accordance with Ecology's comments on the recent LTM reports, present a statistical evaluation of contaminant concentration trends over time in each LTM report."	Yes
51	Page 6-3 Section 6.1 Table 6-2	Correct typo "Utilized".	Thank you, we will make this correction.	Yes

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52	Page 6-4 Section 6.1 Table 6-2	The second and third recommendation in this page appear to be same. One is outdated with redline strikeout.	Thank you, we will delete the redundant recommendation with the strikeout text.	Yes
53	Page 6-4 Section 6.1 Table 6-2	Update the fourth recommendation based on Ecology's comments on the draft VI report.	This recommendation will be revised to read, "Prepare a building inspection and monitoring plan based on the recommendations of the VI study report to ensure that the VI pathway remains incomplete. Include annual foundation inspections for Buildings 82, 85, and 98 and paired indoor air and subslab vapor monitoring every five years for Buildings 82 and 98. Add paired indoor air and subslab vapor monitoring every five years for Building 85 if warranted based on future changes in building use or occupancy."	Yes

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54	Appendix C Table C-1	It does not appear that data for monitoring well MW1-14 is included in Table C-1.	During this FYR period MW1-14 was sampled in 2018 and 2019, with samples analyzed for PCBs (2018) and 1,4-dioxane (2019). Both the PCB and 1,4-dioxane results are provided in Appendix C (Tables C-2, C-3 and C-4).	Yes
55	Appendix C Table C-4	Add footnotes to define lab identifiers.	We will add the lab qualifier definitions as requested.	Yes

References

EPA (2012). *Clarifying the Use of Protectiveness Determinations for Comprehensive Environmental Response, Compensation, and Liability Act Five-Year Reviews*. Memorandum from Director, Office of Superfund Remediation and Technology Innovation. Washington D.C. OSWER 9200.2-111.

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Protectiveness Determinations				
1	OU 1	The Suquamish Tribe does not agree with a determination of "short-term protective" for OU 1 for the following reasons: • The remedy is not performing as expected, RAOs have not been achieved, and RGs are continually exceeded. • Re-characterization efforts have revealed a greater extent of contamination than addressed in the ROD. • Exposure pathways associated with the discharge of contaminated groundwater to aquatic environments have not been fully characterized or controlled. • Risks associated with 1,4-dioxane and PFAS have not been characterized or controlled. The Tribe believes a determination of "protectiveness deferred" is appropriate given that additional investigation is underway. However, if the Navy does not address potential risks associated with PFAS, a determination of "not protective" is recommended.	The Navy concurs that the additional site characterization data collected during this FYR period reveal a greater vertical extent of contamination that known at the time of the ROD, and higher concentrations of VOCs discharging to surface water at the south plantation. Surface water RGs continue to be exceeded, as they were at the time of the ROD when risks regarding this situation were determined to be acceptable and no new pathways or receptors have yet been identified. Understanding that the conceptual site model has changed since the time of the ROD, the Navy has initiated revision of the risk assessment, in collaboration with the Project Team, to determine whether these new data indicate a change in the risk determinations made in the ROD. Unless and until an unacceptable risk is demonstrated, the remedy established in the ROD is considered to be protective, which is why the Navy has selected "short-term protective." Selecting "protectiveness deferred" would only have the effect of putting an unattainable 1-year deadline on the on-going investigation and risk assessment work and delaying project work while a FYR addendum is developed and produced. Selecting "protectiveness deferred" also gives the impression to the public that this FYR has identified previously unknown conditions impacting protectiveness that now must be quickly investigated and addressed. However, the risk assessments will identify conditions impacting protectiveness, if present, investigations are being conducted under a comprehensive and collaborative process with the Project Team, and the path forward is clearly established. The presence or absence of a new ~~, unregulated~~ contaminant, such as PFAS, and emerging contaminants, such as 1,4-dioxane, do not impact the protectiveness of the remedy selected in the ROD for established COCs. The CERCLA process now underway will include both PFAS and 1,4-dioxane, will result in a determination of acceptable or unacceptable risks for the site, and the Navy will take any appropriate remedial actions per a future ROD.	No

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			Additional investigations are also planned to determine if new pathways/receptors exist at the site; however, no new pathways/receptors have yet been identified. Therefore at this time there remains no known on-going exposure, so no identified unacceptable risks are known to be currently present at the site. Therefore, the Navy respectfully declines to change the protectiveness determination and stands by the determination of "short term protective" for OU 1. On page 4-3 of the FYR, we will insert a statement that "aAfter reviewing the FYR, the Tribe provided input on the document. The Tribe does not agree with the Navy's Short-Term Protective determination for OU 1 and feels that a protectiveness determination for OU 1 cannot be made at this time,- (believing a protectiveness statement of "protectiveness deferred" would be is more appropriate. However, the Tribe does concur with the "Short-Term Protective" and "Not Protective" determinations for OU 2 Areas 2 and 8, respectively. Detailed comments made by the Tribe are included in Appendix K."	
2	OU 2 Area 2	Although there may be data gaps concerning the extent of the VOC plume, and the RG for vinyl chloride may need to be formally changed, the Suquamish Tribe agrees with the determination that the remedy is protective. If additional investigation regarding the VOC plume alters the existing CSM such that additional exposure pathways are identified, the next 5YR determination may change.	Understood, thank you.	N/A
3	OU 2 Area 8	The Suquamish Tribe does not agree with a finding of "will be protective" for the following reasons: • Ongoing ecological impacts have been documented and exposure pathways are not currently under control. • Based on the results of the most recent ecological risk assessment, additional groundwater remediation will be	Because the risk assessment shows unacceptable risk at OU 2 Area 8, triggering groundwater controls under the ROD, and the contingent groundwater control remedy has not been selected and is not in progress, the remedy at the site is currently not protective. The ROD includes five remedial options for the contingent remedy, but none are feasible at this site, so the Navy	Yes

Commented [DT1]: Please add statements to the Exec Summary and Section 7 stating that EPA, Ecology and the Suquamish Tribe do not concur with the Navy's protectiveness determination for OU 1.

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		needed. • Potential human health and ecological risks associated with 1,4-dioxane and pfas have not been fully characterized and are not controlled. The Tribe believes that a finding of "not protective" is appropriate until risks associated with PFAS are addressed and additional groundwater remediation is underway.	is currently evaluating additional remedial options. The protectiveness statement for OU2, Area 8 will be changed to "Not Protective". ~~As documented in Table 2-1 of the FYR, the risk assessment completed during this FYR period is a component of the selected remedy under the OU 2 ROD, as is implementation of contingent remedial actions based on the conclusions of the risk assessment. The supplemental RI now being undertaken by the Navy to select the contingent remedy is therefore part of the on-going effort to fully implement the original remedy in the OU 2 ROD. When a remedy is in progress and the final remedy is expected to address the RAOs, the FYR concludes that the remedy "will be protective" when the remedy is fully implemented.~~ ~~The Navy's position is that presence or absence of a new, unregulated contaminant, such as PFAS, and emerging contaminants, such as 1,4-dioxane, do not impact the protectiveness of the remedy selected in the ROD for established COCs. The CERCLA process now underway will include both PFAS and 1,4-dioxane, will result in a determination of acceptable or unacceptable risks for the site, and the Navy will take any appropriate remedial actions per a future ROD. Therefore at this time there is no known on-going exposure, so no identified unacceptable risks are known to be currently present at the site.~~ ~~The Navy respectfully declines to change the protectiveness determination and stands by the determination of "will be protective" for OU 2 Area 8.~~	
4	Sitewide	The Suquamish Tribe believes the sitewide determination of "will be protective" should be changed to "protectiveness deferred" or "not protective" to better reflect the recommended changes to the OU 1 and OU 2 Area 8 determinations.	The ~~Navy respectfully declines to change the~~ sitewide protectiveness determination will be changed to "Not Protective" ~~and stands by the protectiveness determinations for OU 1, OU 2 Area 8, and the site as a whole.~~	Yes
5	Sitewide	In cases of "protectiveness deferred", new or additional information is typically submitted via an addendum prior to the	The Navy does not believe that an addendum to this FYR would add value to the investigations and risk assessments underway.	Yes?

Commented [DT2]: Yes and please note that based on project team discussions, findings of protectiveness deferred are not being considered, negating the need for any addendum to this 5YR.

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		next 5YR. The need for one or more addenda should be discussed with the project team once the protectiveness determinations are finalized.	The Navy is progressing down a path of remedy revisions at OU 1 and OU 2 Area 8 in collaboration with the project team at the best possible speed given the limitations of funding, the complexity of the sites, and the nature of the collaborative process itself. If an addendum to the FYR is required, it will delay progress of the work, simply to produce an addendum within the one-year time limit stating that information is being gathered, a risk assessment is underway, and protectiveness would remain deferred.	

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Technical Assessments				
6	OU 1	The answer to question C should be "yes". Recent data demonstrate that the CSM at the time of the ROD was inaccurate and/or incomplete regarding the nature and extent of contamination, potential ecological and human health exposures and risks, and estimated recovery timeframe. In addition, since the last 5YR, PFAS contamination has been identified as a concern although potential exposure and risks have not been evaluated.	Question C is meant to capture "other information" not otherwise discussed in the FYR that could affect protectiveness. The additional site characterization data and the impacts of those data on protectiveness are already captured by the discussion for Questions A and B and therefore are not required to be captured in Question C. PFAS is already discussed under Question C, and for the reasons stated does not impact protectiveness. See also the response to Ecology's Specific Comment 34 regarding the answer to Question C. With regard to PFAS and its impact on protectiveness, see the discussion under Question B in the FYR and the response to Ecology's Specific Comment 34.	Yes
7	Area 2 OU 2	The answer to question B should be "no". The RG for vinyl chloride has changed.	The answer to Question B will be changed to "no." In addition, the OU 2, Area 2 protectiveness will be changed to "Short-Term Protective." The Navy plans to complete a thorough review of current cleanup levels and to propose~~d~~ updated cleanup levels for discussion and approval by the stakeholders in the process of updating the existing RODs. This process may be expedited by the production of an Explanation of Significant Differences (ESD), if consensus can be reached with the project team regarding the limits of the ESD.	Yes
8	Area ~~2~~ 8 OU ~~8~~2	The answer to question C should be "yes". Since the last 5YR, impacts to benthic organisms have been documented, identifying the need for additional remediation to control exposure. In addition, potential ecological and human health exposures and risks have not been evaluated.	Question C is meant to capture "other information" not otherwise discussed in the FYR that could affect protectiveness. The risk assessment results and the impacts of those results on protectiveness are already captured in the discussion for Questions A and B and therefore are not required to also be capture in Question C. PFAS is already discussed in Question C, and for the reasons stated does not impact protectiveness.	Yes?
Issues/Recommendations				

Commented [DT3]: Yes

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9	General	The addition of CoCs and changes in RGs should be formally documented in the administrative record for each OU, typically through an ESD or RODA. Add recommendations where applicable.	~~Changes in the COC list and RGs will be captured in future ESDs and/or ROD amendments for OU 1 or OU 2 Area 8, if and when the remedies are revised. In most cases the administrative burden to execute ESDs and ROD amendments is not warranted for each ARAR change that could affect an RG, or each adjustment to the list of chemicals monitored during LTM. One use of the FYRs is to track ARAR changes and ensure that the LTM and any decision making is appropriately considering the latest ARARs and list of chemicals for monitoring, keeping in mind the legally binding COC list and RGs from the RODs. Any final decisions (such as considering the site UU/UE) would first require an ESD or ROD amendment to fully update the COC list and RGs, however ongoing ESDs and ROD amendments to capture these changes are not currently warranted.~~Recommendations will be added to the FYR to compare concentrations to current ARARs. The Navy plans to complete a thorough review of current cleanup levels and to propose~~d~~ updated cleanup levels for discussion and approval by the stakeholders in the process of updating the existing RODs. This process may be expedited by the production of an Explanation of Significant Differences (ESD), if consensus can be reached with the project team regarding the limits of the ESD.	Yes
10	General	According to the 2012 EPA guidance on protectiveness determinations, a finding of "protectiveness deferred" typically involves an addendum to the 5YR once ongoing investigations are complete. Add recommendations as appropriate for revised protectiveness determinations.	The Navy does not believe that an addendum to this FYR would add value to the investigations and risk assessments underway. The Navy is progressing down a path of remedy revisions at OU 1 and OU 2 Area 8 in collaboration with the project team at the best possible speed given the limitations of funding, the complexity of the sites, and the nature of the collaborative process itself. If an addendum to the FYR is required, it will delay progress of the work, simply to produce an addendum within the one-year time limit stating that information is being gathered, a risk assessment is underway, and protectiveness would remain deferred.	Yes?

Commented [DT4]: Yes and note that determinations of protectiveness deferred were not applied, which negates the need for any addendum to this 5YR.

Susquamish Tribe Review Comments

Date of Review:	9/14/2020			Page 34 of	
Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Denice Taylor**	
			Code:	**The Suquamish Tribe**	
Project Number:			Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION (Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
11	General	Add a recommendation to update the IC/LUC plan and include in Table 6-1. Because the Navy cites ICs/LUCs as necessary measures to reduce short-term exposures, this is an issue that affects protectiveness. In the update, clarify the status of fish and shellfish harvest advisories and identify the implementing agency. Note that the Suquamish Tribe has authority to determine harvest practices for tribal members. Include OU-specific updates as needed.	The only finding of the FYR regarding LUCs pertains to a LUC-only site, which is not strictly subject to the FYR process. No issues regarding the existing CERCLA-site LUCs or LUC management plan (except the naming convention of IC plan versus LUC plan) were identified by the FYR. Based on the follow-up comment from the Suquamish Tribe, the following changes to the FYR will be made: Page 5-2, line 69, "…closed by the Washington State Department of Health to harvesting and consuming shellfish by recreational or subsistence fishers; therefore, the remedy is protective in the short term. Note that the Suquamish tribe has treaty reserved rights to harvest and maintains the authority to determine harvest practices for tribal members." Page 5-9, line 30, "..closed by the Washington State Department of Health to harvesting and consuming shellfish by recreational or subsistence fishers. Note that the Suquamish tribe has treaty reserved rights to harvest and maintains the authority to determine harvest practices for tribal members." Page 5-10, line 80, "….not currently open by the Washington State Department of Health for harvesting and consuming shellfish by recreational or subsistence fishers; therefore, the remedy is protective in the short term. Note that the Suquamish tribe has treaty reserved rights to harvest and maintains the authority to determine harvest practices for tribal members." Page 5-11, line 121, "In the interim, the tide flats are currently not open by the Washington State Department of Health for harvesting and consuming shellfish by recreational or subsistence fishers; therefore, the remedy is protective in the short term. Note that the Suquamish tribe has treaty reserved rights to harvest and maintains the authority to determine harvest practices for tribal members."	Yes

Commented [DT5]: I think this comment and response needs some additional clarification. In multiple places in Section 5, the Navy states that the current harvest restrictions for the tide flats and Port Orchard Bay ensure that the OU 1 and Area 8 remedies are protective in the short term. Please clarify whether the harvest restrictions are ROD requirements or ICs. I suspect they are not. If they are not, identify WA DOH as the agency that has jurisdiction. I would also like it to be noted that the Suquamish Tribe has treaty reserved rights to harvest and maintain the authority to determine harvest practices for tribal members. If the harvest restrictions are ROD requirements/ICs, that needs to be clarified in this 5YR and probably in the IC/LUC plans, as commented. And the same note about Suquamish Tribe would apply.

Susquamish Tribe Review Comments

Date of Review:	**9/14/2020**			Page 35 of	
Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Denice Taylor**	
			Code:	**The Suquamish Tribe**	
Project Number:			Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION (Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
			Page 5-14, line 21, "Nevertheless, current Washington State Department of Health restrictions prohibit the harvesting of shellfish from Port Orchard Bay; therefore, the remedy remains protective. Note that the Suquamish tribe has treaty reserved rights to harvest and maintains the authority to determine harvest practices for tribal members." Page 5-16, line 108, "…currently Washington State Department of Health restrictions in place that prohibit the harvesting of shellfish from Port Orchard Bay; therefore, the remedy remains protective. Note that the Suquamish tribe has treaty reserved rights to harvest and maintains the authority to determine harvest practices for tribal members."	
12	OU 1, Table 6-1	The milestone date of December 2023 seems overly optimistic for the entirety of the first remedy performance recommendation. Establish achievable milestones for specific efforts or deliverables, in consultation with the project team.	A timeline showing expected completion of specific elements of this recommendation is provided in Figure 7-1. This recommendation expects that the Project Team will have completed items 1-3 and be able to make a decision regarding the need for early remedial actions or proceeding to an FS by the end of 2023. This timeline seems achievable as shown on Figure 7-1, so no change is proposed.	Yes
13	OU 1, Table 6-1	In the first performance recommendation, point 3 would typically be part of point 4, assuming an FFS is going to be completed. Recommend this be considered the same effort.	As discussed during the pilot program for Adaptive Site Management, the points of compliance and remedial action objectives are key elements for directing remedial action and an FFS. The Navy continues to believe that a focused discussion on these key elements is necessary prior to discussing potential remedy revision.	Yes
14	OU 1, Table 6-1	What types of early remedial actions are being considered? Consult with the project team to clarify this prior to revising the OU 1 recommendations.	The Navy is gathering information on potential new and innovative technologies that might be applicable to the site, but has not made any determination as to what revisions to the remedy might be appropriate. Selection of early actions or other revisions to the remedy will be made in consultation with the Project Team after clarification of the points of compliance and RAOs.	Yes

Susquamish Tribe Review Comments

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Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Denice Taylor**	
			Code:	**The Suquamish Tribe**	
Project Number:			Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION (Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
15	OU 1, Table 6-2	The third recommendation in Table 6-2 regarding using the OU 2 Area 8 ERA to the extent possible in the OU 1 risk assessments should be deleted. While some assumptions may be appropriate to carry over, this will occur as part of the normal process. The OU 1 assessments need to be specific to OU 1; the Area 8 receiving environment is very different from OU1.	This finding is meant only to capture the successful process used at Area 8, not the site-specific information. However, this finding will be deleted as requested.	Yes
16	OU 2, Area 2, Table 6-2	Move the second recommendation to Table 6-1. The results of the investigation will either confirm or alter the CSM, which may affect the protectiveness determination in the next5YR.	~~Although the Navy agrees that information from the planned data gaps investigation may change the protectiveness determination in the next FYR, there is currently no evidence that protectiveness is affected now or in the future. Moving this recommendation to Table 6-1 would require that the protectiveness of OU 2 Area 2 be changed to "short term protective," which doesn't seem appropriate as agreed in Suquamish Tribe Comment 2.~~Recommendation #2 on Table 6-2 will be moved to Table 6-1.	Yes

Susquamish Tribe Review Comments

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Project Title: **Draft Fifth Five Year Review, NBK Keyport**			Reviewer:	**Denice Taylor**	
			Code:	**The Suquamish Tribe**	
Project Number:			Phone:		

ITEM NO.	*Pg #, Section, Line*	*COMMENTS*	*REVIEW ACTION (Provide explanation & location of changes as necessary)*	*Agency Concurrence (Yes/No)*
17	OU 2, Area 8, Table 6-1	In consultation with the project team, separate the remedy performance recommendation into specific efforts or deliverables with achievable milestones.	A timeline showing expected completion of specific elements of this recommendation is provided in Figure 7-1.	Yes
18	OU 2, Area 8, Table 6-1	Correct typos in the second recommendation.	The Navy assumes that this comment is referring to Table 6-2, not table 6-1. The recommendation with the strikeout text is an early version of the recommendation above and will be deleted.	Yes

End of Comments

Figure Crosswalk Table, Draft to Draft Final FYR

Draft Figure Number	Draft Final Figure Number	Changes from Draft to Draft Final
1-1	1-1	None
1-2	1-2	None
1-3	1-3	None
1-4	1-4	None
1-5	1-5	None
1-6	1-6	None
2-1	2-1	None
2-2	2-2	None
2-3	2-3	Tidal Lag study wells identified
4-1	4-1	Title Changed; deeper GW flow arrow added
4-2	4-2	PCB data added
-	4-3	New SW/seep data figure added
4-3	4-4	None; Figure number shifted
4-4	4-5	None; Figure number shifted
4-5	4-6	PFAS wells identified; 1,4-dioxane data added
4-6	4-7	None; Figure number shifted
4-7	4-8	None; Figure number shifted
4-8	4-9	PFAS wells identified; 1,4-dioxane data added
4-9	4-10	None; Figure number shifted
4-10	4-11	None; Figure number shifted
4-11	4-12	None; Figure number shifted
4-12	4-13	None; Figure number shifted
4-13	4-14	None; Figure number shifted
-	4-15	New Tidal Lag Ranges figure added
4-14	4-16	None; Figure number shifted
4-15	4-17	None; Figure number shifted
4-16	4-18	None; Figure number shifted
4-17	4-19	PFAS wells identified
4-18	4-20	None; Figure number shifted
4-19	4-21	None; Figure number shifted
4-20	4-22	None; Figure number shifted
4-21	4-23	None; Figure number shifted
7-1	7-1	None

From:	Alam, Mahbub (ECY)
To:	Denice Taylor; Cellucci, Carlotta CIV NAVFAC NW, EV31 (carlotta.cellucci@navy.mil)
Cc:	Harry Craig (Craig.Harry@epamail.epa.gov); Brooks, Bonnie (ECY); Evered, John (ECY); Meyer, Michael; JoAnn Grady (joanngrady@gmail.com)
Subject:	RE: Draft Final Keyport 5YR and revised RTCs
Date:	Friday, November 06, 2020 4:00:33 PM

Hi, Carlotta:
Ecology has reviewed the revised responses. We have the following notes.
1. Ecology specific comments #1 to 7 and the corresponding responses are missing in the revised RTC document. To note there were 7 general comments and 55 specific comments (62 in total). Specific comment #6 needed revised response.
2. I also agree with Denice that a statement be added to the Executive Summary and Section 7 explaining that EPA, Ecology and the Suquamish Tribe did not concur with the Navy's protectiveness determination for OU 1.

Thanks,

Mahbub Alam, PhD, PE
Environmental Engineer
(360) 407-6913; mala461@ecy.wa.gov

-----Original Message-----
From: Denice Taylor <dtaylor@suquamish.nsn.us>
Sent: Thursday, November 05, 2020 7:27 PM
To: Cellucci, Carlotta CIV NAVFAC NW, EV31 (carlotta.cellucci@navy.mil) <carlotta.cellucci@navy.mil>
Cc: Harry Craig (Craig.Harry@epamail.epa.gov) <Craig.Harry@epamail.epa.gov>; Alam, Mahbub (ECY) <MALA461@ECY.WA.GOV>; Brooks, Bonnie (ECY) <bobr461@ECY.WA.GOV>; Evered, John (ECY) <jeve461@ECY.WA.GOV>; Meyer, Michael (meyerm@battelle.org) <meyerm@battelle.org>; JoAnn Grady (joanngrady@gmail.com) <joanngrady@gmail.com>
Subject: Draft Final Keyport 5YR and revised RTCs

Carlotta,
Attached is the revised RTC table with my comments. I think comment 11 still needs some clarification. I would also like to see a statement added to the Executive Summary and Section 7 explaining that EPA, Ecology and the Suquamish Tribe did not concur with the Navy's protectiveness determination for OU 1. The rest are minor comments or confirmation of agreement.
I also reviewed the revisions to the text. There are some editorial and word changes I would have made, but I don't think they are really necessary at this point.
Let me know how you want to address those couple of things or if you have any questions.
Denice

From:	Alam, Mahbub (ECY)
To:	Cellucci, Carlotta CIV USN NAVFAC NW SVD WA (USA); Harry Craig (Craig.Harry@epamail.epa.gov) (Craig.Harry@epamail.epa.gov); "Denice Taylor (dtaylor@suquamish.nsn.us)"
Cc:	Rohrbaugh, Amanda L CIV USN NAVFAC NW SVD WA (USA); Meyer, Michael
Subject:	RE: Keyport FYR - Final back-check
Date:	Tuesday, November 10, 2020 10:05:43 AM

Carlotta:
I have taken a quick look at the revised RTC. It looks fine to me.
Thanks for including the info in the executive summary.

Mahbub Alam, PhD, PE
Environmental Engineer
(360) 407-6913; mala461@ecy.wa.gov

From: Cellucci, Carlotta CIV USN NAVFAC NW SVD WA (USA) <carlotta.cellucci@navy.mil>
Sent: Monday, November 09, 2020 9:00 PM
To: Harry Craig (Craig.Harry@epamail.epa.gov) (Craig.Harry@epamail.epa.gov) <Craig.Harry@epamail.epa.gov>; Alam, Mahbub (ECY) <MALA461@ECY.WA.GOV>; 'Denice Taylor (dtaylor@suquamish.nsn.us)' <dtaylor@suquamish.nsn.us>
Cc: Rohrbaugh, Amanda L CIV USN NAVFAC NW SVD WA (USA) <amanda.rohrbaugh@navy.mil>; Meyer, Michael <meyerm@battelle.org>
Subject: Keyport FYR - Final back-check

Hi Team,

Please review the attached revised responses to comments (RTCs) and provide concurrence or comments ASAP. These revised RTCs reinstates the revised responses to Ecology's specific comments 1-7, which were inadvertently deleted during table formatting. The response to Suquamish Tribe comment 11 has been further revised based on the follow-on comment received, and text revisions shown in the revised comment responses will be incorporated into the five-year review report.

In response to the comment from Ecology and the Suquamish Tribe, the following statement will be added to the Executive Summary and Section 7 of the five-year review: "Ecology, EPA, and the Suquamish Tribe do not concur with the Navy's protectiveness determination for OU 1, and feel that a determination of 'protectiveness deferred' would be more appropriate."

To document final comments and responses, this email and the emailed comments received will be

included with the RTCs in an appendix of the document.
Thanks,

C.

Carlotta Cellucci, LG
Remedial Project Manager
Naval Facilities Engineering Systems Command (NFESC) Northwest
206-595-6711
Carlotta.cellucci@navy.mil

From:	Denice Taylor
To:	Cellucci, Carlotta CIV USN NAVFAC NW SVD WA (USA); Harry Craig (Craig.Harry@epamail.epa.gov) (Craig.Harry@epamail.epa.gov); "MALA461@ECY.WA.GOV"
Cc:	Rohrbaugh, Amanda L CIV USN NAVFAC NW SVD WA (USA); Meyer, Michael
Subject:	RE: Keyport FYR - Final back-check
Date:	Tuesday, November 10, 2020 10:07:48 AM
Attachments:	Fifth 5YR Keyport RTCs revised DT final edits.doc

Carlotta,
A couple edits on the revisions proposed in response to comment 11. No other changes.
Denice

From: Cellucci, Carlotta CIV USN NAVFAC NW SVD WA (USA) <carlotta.cellucci@navy.mil>
Sent: Monday, November 9, 2020 9:00 PM
To: Harry Craig (Craig.Harry@epamail.epa.gov) (Craig.Harry@epamail.epa.gov) <Craig.Harry@epamail.epa.gov>; 'MALA461@ECY.WA.GOV' <MALA461@ECY.WA.GOV>; Denice Taylor <dtaylor@suquamish.nsn.us>
Cc: Rohrbaugh, Amanda L CIV USN NAVFAC NW SVD WA (USA) <amanda.rohrbaugh@navy.mil>; Meyer, Michael <meyerm@battelle.org>
Subject: Keyport FYR - Final back-check

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To document final comments and responses, this email and the emailed comments received will be included with the RTCs in an appendix of the document.
Thanks,

C.

Carlotta Cellucci, LG
Remedial Project Manager
Naval Facilities Engineering Systems Command (NFESC) Northwest
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