Creekside Environmental Consulting, LLC ----------

October 2, 2012

L. Alexandra Liverman, Portland Harbor Stormwater Coordinator
Northwest Region Cleanup Program
Oregon Department of Environmental Quality
2020 SW 4th Avenue, Suite 400
Portland, Oregon 97201

Subject: Letter Response – Summary of Findings
Portland Harbor Source Control Evaluation
Site: Peninsula Iron Works, 6618 N Alta Street, Portland, OR
CEC Project No. PIW - 2012.1 / 351-12023-01

Dear Ms. Liverman:

Creekside Environmental Consulting, LLC (Creekside) has prepared this letter on behalf of Peninsula Iron Works, Inc. (PIWs) in response to the Oregon Department of Environmental Quality's (DEQ's) December 30, 2011 letter request[1] for a Portland Harbor Source Control Evaluation at their facility located at 6618 N Alta Street in Portland, Oregon (Subject Site, see Figures 1 and 2 attached).

Your letter stated that DEQ recently reviewed sediment data collected in the vicinity of PIW's facility, and due to the presence of elevated concentrations of Portland Harbor contaminants of concern (COCs)[2], determined that source control evaluations are needed at several upland facilities and City stormwater outfalls discharging into this area (City of Portland, 2012)[3]. You specifically requested that PIW enter into a Voluntary Cleanup Program (VCP) agreement to undertake a remedial investigation, and if necessary, to implement source control measures to ensure any discharges from

[1] Letter from Mr. Jim Anderson of Oregon Department of Environmental Quality, Northwest Region Portland Office to Mr. David Johnson, Peninsula Iron Works, December 30, 2011, RE: Portland Harbor Source Control Evaluation at Peninsula Iron Works property at 6618 N. Alta Avenue.
[2] Specifically, polychlorinated biphenyls (PCBs).
[3] The principal data source is: City of Portland Bureau of Environmental Services, 2012, Outfall Basin 52 Source Investigation Report, City of Portland Outfall Project, ECSI No. 2425: Prepared through an Intergovernmental Agreement for Remedial Investigation and Source Control Measures, DEQ No. LQVC-NWR-03-10, 524 p, including tables, figures, and appendices.

PIW to the Willamette River are managed to reduce the amount of contaminants being transported to and entering the river. PIW entered into the VCP in August 2012.

Creekside has reviewed PIW's facility records, available historical information, and data from City of Portland's Bureau of Environmental Services which is discussed below. Based on our review, we have concluded that the elevated concentrations of Portland Harbor COCs, specifically PCBs, detected in sediment and surface soil on and adjacent to PIW's property are the consequence of off-site sources that have deposited PCBs within outfall basin 52 and onto PIW's site which is positioned at the low-point of storm water convergence in the basin. There is abundant evidence to indicate that PIW is not the source of PCBs in Outfall Basin 52.

1.0 BACKGROUND

Site Development History / Chronological Aerial Photo Review

The site history was documented through research of aerial photographs, Sanborn Maps, topographic maps, facility ledgers, and institutional knowledge provided by the current property owners[4].

1905 - In 1905, the northeast portion of the subject property was developed with a horse stable and a small structure slightly south of the stable. The remainder of the site was vacant. The Oregon Railroad (St. John's Branch) runs adjacent to the property on the western side. Beyond the tracks to the west are open land, ponds, and the Willamette River. A few dwellings are located on nearby properties including Portland Woolen Mills, which has a large fuel house, is located two blocks north of the site.

1911 - By 1911, the horse stable was removed from the site; however, the smaller building is still present. The western portion of the subject property was developed with PIW's first building. Labels on the structures include; Foundry, Machine Shop and BLSM (blacksmith). Our research indicates that PIW's facility was powered with electricity, gas, and coal. Peninsula Iron Works serviced the wood products industry along the Columbia Willamette Peninsula with parts for their machinery. A railroad switch is located to the northwest along the railroad right-of-way (ROW). A large shipbuilding industry is located to the northwest and west. The land between the railroad tracks to the west and the Willamette River is clearly under water at times. The St. John's City dock is located on the river to the west.

"During the "Lend Lease" years of WWI, Peninsula Iron Works produced tail shafts, rudders, stern tubes and steering gears for the wooden cargo ships built to assist Great Britain.[5]" These cargo ship parts were likely supplied to Grant Smith Porter shipyard, the most prolific supplier of "Hough" type wooden hall ships, located adjacent to the north and west boundaries of the Peninsula Iron Works' property.

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[4] Dave and James Johnson, whose grandfather became the owner of the property and business in the late 1960s. The property has been owned by the Johnson family ever since.

[5] http://peniron.com/intro.html

1920s - By 1924, Peninsula Iron Works (aka Peninsular Foundry & Machine Works and Peninsula Pattern Works) facility was powered primarily by electricity and coal. There were several machine shops, a pattern loft, a foundry, a chipping room and a tool room. Equipment labeled on the site includes a core oven, an ore oven and an air compressor. Wooden floors were also installed. During this post WWI era, PIW returned to supporting the timber industry with sawmill carriages, lumber handling equipment, and a popular portable drag saw. PIW even manufactured the first chainsaw.[5] Industrial activity in the vicinity included the remaining vestiges of the Grant Smith Porter shipbuilding company to the north and a wood working company to the south of the site. A railroad switch/spur, which is still present, was constructed to the southwest, towards the Willamette River.

1940s - "During WWII, PIW joined other local industries that worked around the clock to supply goods and services for the war effort.[5]" Examples of items cast at the foundry included over 1.5 million hand grenade castings and anchors for Liberty ships and PT boats. Following WWII, "Peninsula Iron Works refocused on the timber industry manufacturing Peninsula Veneer Hogs, dual belt and wide belt sanders, and Peninsula Scissor Lifts.[5]"

In 1946, George C. Johnson, entered into stock ownership at PIW. Mr. Johnson had been working as a machinist at the facility since 1925. Eventually, the Johnson family became the sole owners of PIW.[6]

1950s - By 1950, PIW consisted of a machine shop, tool room, pattern shop, pattern loft, chipping room, foundry, and office.. Wood cutting, boat building, and woolen milling industries are found in the proximity of the Peninsula Iron Works Site. A city sanitary sewage pumping station is located across the railroad tracks to the west. The Grant Smith Porter ship company and the wood working company are no longer present, and the railroad spur to the southwest appears to have been removed.

By 1969, PIW operated a machine shop under Johnson family ownership and management[6]. The machine shop occupied the west half of the facility and the east side were used for storing machinery. There is a concrete floor in the machine shop. A small shed labeled as paint and oil storage was also located on the south side of the subject property. The Johnson family reportedly never owned or occupied the property south of the machine shop[6].

The Johnson family remodeled the machine shop in phases. Prior to the first remodeling phase, the western portion of the shop was separated from the east side. These two sections were connected with a drive-in bay in 1975. The north bay of the shop was extensively remodeled in 1991. During this remodel, the drive-in bay between

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[6] When George C. Johnson passed away in 1967, his son Stuart B. Johnson assumed responsibility of the business. In 1994, Janet Johnson accepted the role of President, and Stuart Johnson relinquished control of his shares to his two sons James J. Johnson and David M. Johnson in 1994. In 1996, James and David Johnson purchase Peninsula Iron Works. James Johnson was named the company's President, David the Vice President, and Janet the Secretary-Treasurer. From Peninsula Iron Works' web page, http://peniron.com/intro.html.

the west and east shop was covered, and a 20-foot deep concrete-lined pit was constructed to house a large boring mill, and the storm drain system disrupted by the construction of the pit was modified. In 1999, the outdoor storage area located in the south-central part of the facility was covered.

The subject property has had industrial operations on the site since around the 1910s. Over the years, the nature of the industry on this site has varied; however, it appears to have always had machine shop operations in connection with other metal finishing operations. Surrounding areas to the north and west have also been industrial in nature from the 1930s into the 1970s. Since that time, much of the surrounding industries have ceased operations. Cathedral Park was completed around 1980 on the land to the west, south and east.

General PCB History Pertinent to Subject Site

Monsanto was the primary manufacturer of PCBs in North America under the trade names Aroclor from 1929 into the 1970s when it was banned. Aroclor 1260 is the only PCB detected in the vicinty of the subject site; this congener is indicated to have been primarily used before 1950.[7] Reported uses included[8]:

- Polyvinyl chloride (secondary plasticizer to improve flame retardance and chemical resistance)
- Polyester resins (strengthen fiberglass; reifnforce resins and render fire-retardants economiocal)
- Varnish (improve water and alkali resistance)

DEQ literature additionally indicates Aroclor 1260 use in transformers, hydraulic fluids and to reduce dust on gravel and dirt roads.

CURRENT SITE OPERATIONS

PIW services the Portland job shop market through contract work, product design, manufacturing, and repair. PIW's current operations[5] include a machine shop and a metal fabrication shop. Machining operations are accomplished using eight (8) metal lathes, five (5) planar mills, four (4) horizontal boring mills, two (2) radial drills, two (2) vertical mills, and one (1) key seater. Peninsula's fabrication shop includes two (2) hydraulic presses, three (3) saws, six (6) welding stations, two (2) torch (cutting) stations, and three (3) positioners.

Potential On-Site Sources of PCBs

Potential sources of PCBs associated with Peninsula Iron Works' historic and current operations include: foundry oils used in sand molds, machine oils, transformer dielectric

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[7] http://en.wikipedia.org/wiki/Polychlorinated_biphenyl

[8] Sited source: Monsanto Technical Bulletin O/PL 306. As shown in Table 5.8 of Chlorinated Organic Compounds in the Environment by Ramamoorthy, Sub, Ramamoorthy, Sita, 1997.

oil, air compressor oil, an underground storage tank, and oil shed. These sources are addressed below:

Former Foundry Operations

Peninsula Iron Works operated a coal and coke fired foundry at the site from approximately 1910 through the mid 1960s. George Johnson was familiar with foundry operations, and he shared historic details with his son Stuart, who in turn shared this knowledge with his sons. Note that Mr. Johnson began working at PWI in 1925, prior to the introduction of PCBs in 1929[9].

The foundry was located in the eastern portion of the shop. An elevator raised the coal/coke fuel to the cupola of the building, the coal/coke was dumped into carts, and the loaded carts moved the coal/coke along a rail to the mouth of the furnace where it was dumped. A wood-fire was built in a box which was lowered down into the furnace to ignite the coal/coke. Then the fans were started.

Molasses was used in lieu of oil to form the sand molds used in the casting process. Workers determined that molasses produced less bubbles (resulting in fewer voids) when the molten metal was poured in the mold. The result was a better quality casting. Big barrels of molasses were stored at the site when the foundry was active.

- ✓ **Because oil was not used in the patterning process, the former foundry operations do not appear to be a source of PCBs detected in soils or sediments in the vicinity of the site.**

Machine Oils Use History

While under Johnson family management (mid 1960s – present), PIW has exclusively used four types of oils/coolants in its machine shop operations. A list of these petroleum products is provided below:

- Water soluble coolant – circulated through lathes and milling machines to cool and lubricate cutting tools and machined parts;
- International Standards Organization (ISO) 100 machine oil – circulated through industrial equipment such as gear boxes to clean and lubricate bearings;
- ISO 68 Way oil – lubrication of slides and ways of machine tools to reduce wear and eliminate stick-slip or jerky motion of sliding parts; and
- ISO 46 hydraulic oil – used in gear, vane, and piston hydraulic systems found in machinery at the site.

According to its general ledger (GL), Peninsula Iron Works acquired its oil from Merit Oil from 2002 to the present and from Tarr/Priestly prior to 2002. According to statements from both vendors, the oil that they sold to Peninsula Iron Works did not contain PCBs.

[9] DEQ Fact Sheet: Sources of Polychlorinated Biphenyls.

- A letter from Robert Mitchoff of Merit Oil to Peninsula Iron Works, dated August 7, 2012, stated: "Merit Oil and Refining Company has never sold, delivered, or distributed any oil, lubricant, or product containing poly chlorinated biphenyl's [sp]in the last 10 years of doing business with Peninsula Iron Works."
- Another similar letter from Greg Allen, Quality Control Manager at Tarr, LLC to PIW dated October 1, 2012 stated: "The question has come up whether the Chevron Lubricants (Typically Machine Oils) purchased by Peninsula Ironworks from Tarr, LLC/Tarr-Inc/Priestley Oil & Chemical ever contained PCB's. To the best of our knowledge, and after consulting with Chevron Lubrication Engineers, PCBs have never been used in any lubrication products manufactured by Chevron."
- PCBs as Aroclors were not detected in six 3" square wipe samples collected by Dave Johnson on February 21, 2012 in oil-stained areas throughout the shop (see attached lab data from Specialty Analytical, chain-of-custody documentation and a map showing the approximate sample locations). This data corroborates the oil vendor's statements that PCB-containing machine oils/coolants have not been sold, delivered, or distributed by Merit Oil or Tarr, LLC/Tarr-Inc/Priestley Oil & Chemical during their years of doing business with Peninsula Iron Works.

✓ **Creekside concludes that machine oils currently and historically used in metal machining operations at the subject site are not the source of PCBs detected in soil and sediment in the vicinity of the site. Additionally, as previously stated, Monsanto reported Aroclor 1260 was not used in machine oils.**

Site Electrical Transformers

While under Johnson family management, only dry sump electrical transformers have been used at the machine shop. These transformers are located on an elevated platform located near the center of the shop and have not changed locations during the period that the Johnson family owned the facility. These transformers do not contain dielectric oil and are non-PCB containing.

PCBs as Aroclors were not detected in a wipe sample collected on February 21, 2012, from an oil-stained area next to the wall beneath the transformer platform.

✓ **Therefore, transformers containing dielectric fluids do not appear to have been used at the site. Transformers and other electrical equipment do not appear to be the source of PCBs detected in soils and sediments in the vicinity of the site.**

Site Air Compressor

An air compressor has been at the shop since at least 1924. A number of years ago, the facility's old air compressor was replaced with a newer unit. On February 21, 2012, a wipe sample was collected from the oil-stained concrete floor beneath the old air compressor's footprint, and the sample was analyzed for PCBs as Aroclors. PCBs were not detected in the sample.

- ✓ **The oil leaked from the old air compressor formerly at the site does not appear to be the source of PCBs detected in soils or sediments in the vicinity of the site.**

Underground Storage Tank

On September 12, 2012, an approximate 630-gallon steel underground storage tank (UST) was decommissioned by removal. The UST had not been used recently and presumably was used for storing heating oil. The UST was located under asphalt pavement at a position along the south side of the shop and 50 feet east of the southwest corner of the building. An oil storage shed was formerly located above the UST. No product was observed in the tank after it was cut open. Upon its removal, corrosion holes were observed in the bottom and ends of the tank. Petroleum stained soil was sampled at three locations on the floor of the UST excavation. Diesel-range organics were detected at a maximum concentration of 22,300 milligrams per Kilogram (mg/Kg) in sample GS03-N-5.5-120912 (north sample), and oil-range organic were detected at a concentration of 1,250 mg/Kg, in sample GS01-S-6-120912. The sample with the greatest total petroleum hydrocarbon concentration was submitted for analysis of PCBs. PCBs were not detected in the sample.

- ➢ **This data indicates that the product formerly stored in the UST was not a source of PCBs detected in sediments or soils adjacent to the western boundary of the site.**

South-Side Oil Shed

An oil shed was located adjacent to the southwest corner of Peninsula Iron Works' machine shop. The machine oils/coolants Peninsula Iron Works used in its machining operations were stored in this shed. As mentioned, Peninsula Iron Works' suppliers certified by letter that their machine oil products did not contain PCBs. These statements are corroborated by soil sampling conducted during decommissioning of the UST formerly located beneath the oil shed. PCBs were not detected in the worst-case soil sample[10] collected at 5.5 feet below ground surface on the floor at the north end of the UST excavation.

Storm Water

The southwest side of PIW's property adjacent to the railroad tracks is the low spot in the north and central branches of outfall Basin 52, both in terms of captured storm water and surface storm water runoff. As such, the unpaved strip between PIW's southwest property line and the railroad tracks is the settlement area for surface storm water runoff from numerous upstream industrial facilities and roads for over 100 years.

Peninsula Iron Works Storm Water Controls

Storm water captured on the north side of Peninsula Iron Works drains to City catch basin CB ANE911 located near the northwest corner of the shop. Storm water runoff

[10] Sample GS03-N-5.5-120912 with diesel-range organics detected at a concentration of 22,300 mg/Kg.

that washes down N. Alta Avenue is captured by this catch basin. Catch basin CB ANE911 drains to City manhole MH AAE513/ST2, which also receives storm water from upstream facilities in the north branch of Basin 52. During heavy rain events, debris upstream of the subject site is washed down to CB ANE911. For example, Dave Johnson observed a lot of bark dust/landscaping mulch being washed into CB ANE911 during a heavy rain event earlier this spring[8]. This catch basin rarely plugs or puddles according to Dave Johnson.

Storm water from Peninsula Iron Work's roof drains and the City's parking lot to the south is captured by City catch basin CB ANE921. Storm water from this catch basin flows eastward to City manhole MH AAE516/ST4, which receives storm water from upstream facilities in the central branch of Outfall Basin 52. City manhole MH AAE516/ST4 drains westward and northward to City manhole MH AAE519. Dave Johnson and James Johnson both observed that catch basin CB ANE921 often plugs with tree litter and overflows into the south part of the City parking lot, the southwest corner of the shop, and the eastern part of the railroad easement west of Peninsula Iron Works' shop[8,12].

Storm Water Ponding

On January 19, 2012 the City of Portland sent an Industrial Source Control Memo to Peninsula Iron Works regarding ponding of water around the southwest portion of the site. This document clearly documents ponding of storm water between the subject site and the railroad easement/ballast located west of the subject site. It should be noted that ponding of storm water in this area of the site has occurred during heavy rain events since development of the property, as can be inferred in the 1956 aerial photograph, and based on conversation with Peninsula Iron Works owners[8,12].

1956 Aerial photograph showing residual flood waters surrounding the south and north sided of the subject site (University of Oregon, Knight Library).

Storm Water Compliance

Creekside spoke to the Laura Johnson at the City of Portland, Bureau of Environmental Services about previous NPDES permit files. She confirmed that Peninsula Iron Works applied for and was granted a No Exposure Certification (NEC) in March 2009 based on

a letter received in 2008. Peninsula Iron Works was required to complete an Accidental Spill Prevention Plan (ASPP) which also detailed maintaining outdoor storm water structures such as catch basins in order to be permitted to have the ASPP. This plan was approved in August 2009. Since that time Peninsula Iron Works has been operation under this NEC and was not required to complete any storm water sampling in 2008 or 2009.

POTENTIAL OFFSITE SOURCES OF PCBS

There are several potential sources of PCBs other than Peninsula Iron Works in Outfall Basin 52, and there is a very plausible transport mechanism for concentrating PCBs in sediment and soil adjacent to the subject site. These "off-site" sources of PCBs and corresponding transport mechanism include the Oregon Railroad right-of-way (ROW), up-gradient industrial facilities, and contaminated Willamette River flood sediments. These potential source areas and associated migration pathways are described below.

Oregon Railroad ROW - As described above, two railroad switches leading to two rail spurs that serviced the former shipyard were formerly located in the railroad ROW. One switch was located northwest of the site in line with the north side of N. Alta Avenue, and the second switch was located southwest of the site and centered on the south portion of the block that is not occupied by Peninsula Iron Works. These railroad switches were frequently lubricated with oil to maintain smooth operation of the switch mechanism. Mr. Dave Johnson recalls that during the late 1960s and early 1970s, railroad personnel would pour lube oil from a black bucket with a pour spout on the rail switch plates associated with the northwest rail spur on a frequent basis[11]. Petroleum-based lube oils would have been used prior to the mid 1970s in lieu of less toxic modern graphite-based synthetic lubricants used today. Application of lube oil poured from an oiling bucket would likely have resulted in excess that would impact the ballast and underlying soil. **The former rail spur switch location almost exactly coincides with the PCB hot spot where total PCBs were detected in BES' sample 52_15, collected on January 6, 2011, at a concentration of 21,700 µg/Kg[3].**

Additionally, a literature search showed historical association of PCBs and railroads. Railroad switching yards are the subject of a number of investigations and remediation projects. In addition to potentially being applied to switches on a regular maintenance program, PCBs may have leaked from on-board transformers in electric locomotives and may be associated with railroad ties (also known as railway sleepers identified as an "open" source of PCBs banned in 1973[7]) as part of the creosote or pentachlorophenol wood treatment.

Up-gradient Industrial Facilities

The southwest side of PIW's property adjacent to the railroad tracks is the low spot in the north and central branches of outfall Basin 52, both in terms of captured storm water and surface storm water runoff. As such, the unpaved strip between PIW's southwest

[11] Personal communications with Dave Johnson, September 12, 2012.

property line and the railroad tracks is the settlement area for surface storm water runoff from numerous upstream industrial facilities and roads for over 100 years. The industrial operations outlined below are potential sources of PCBs and metals, and they are upstream in the storm water drainage basin.

Roadway Dust Control

Dave Johnson recalls that when N. Alta Avenue was still a dirt road, the City would spray the road with oil to control dust[7]. The oil used for dust control is a potential source of PCBs[9].

South Portion of Block 10003

The contiguous south half of block 10003 was used as an industrial storage and construction staging area since the early 1900s. Paint, oil, metal ingots, casting patterns, clay, sandblast grit, and construction equipment were among the items stored on the south portion of the block[12]. During WWI and WWII, materials used in support of the war effort were stored on the property. Some of these materials, such as metal ingots, were used by the foundry when casting parts and machinery used in the war effort. This property likely was used for staging equipment and materials when the St. Johns Bridge was constructed during 1929-1931. James Johnson observed that the block was an undeveloped field during the mid 1970s, and he said the property was paved after the City acquired it. Construction equipment, materials, and large totes of spent sandblast grit were staged on the south half of the block when the St. Johns Bridge was repainted seven years ago. Stored oils, paint, and paint waste are potential sources of PCBs detected in soil and sediment in the vicinity of the subject site.

Portland Woolen Mills

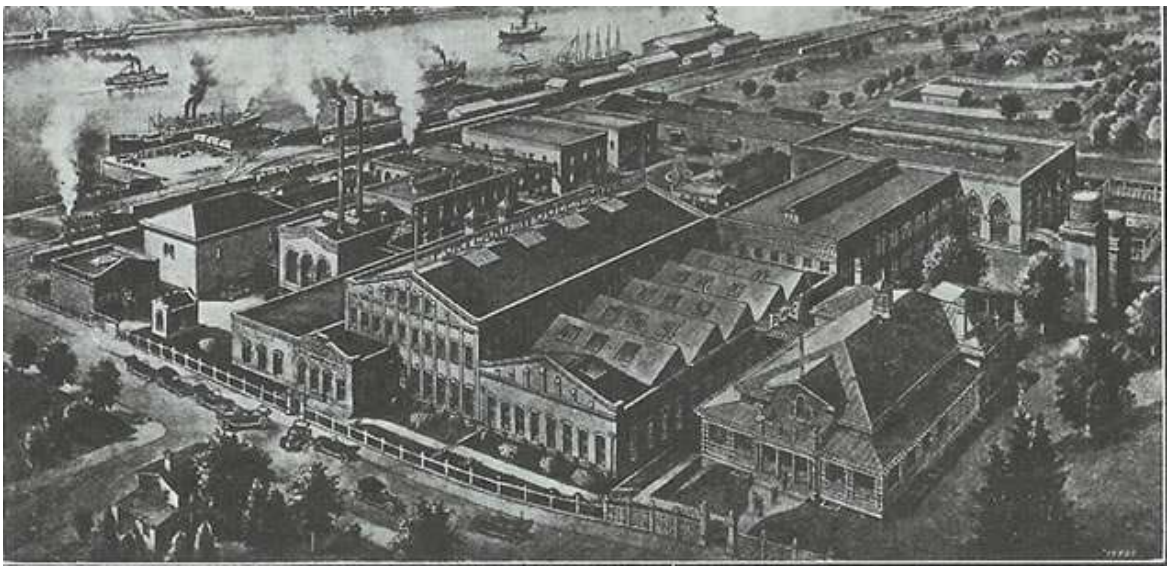
During the period 1905 through approximately 1960, Portland Woolen Mills was located one block north of the site and occupied an area of over two square blocks. It was touted as one of the largest woolen mills west of Cleveland, Ohio at the time. The mill operation included the following processes: sorting and mixing; scouring (washing) and carbonizing to remove wool grease and organic matter; drying; picking and oiling; dyeing; carding and burling; and washing to remove the spinning oil. Originally, sawdust was used to fire the large boiler that heated the water and steam used in the scouring, carbonizing, and drying processes and to heat the buildings. The sawdust-fired boiler may have been replaced by an oil-fired boiler in later years. A large electrical transformer was located outside the main structure near the southwest corner of the facility.

It is unknown at this time if they were produced at this location, but navy vessels (including submarines) used PCB-impregnated wool:

[12] Personal communications with James Johnson, September 12, 2012.

In 1989, the Navy identified the potential for viscous PCBs at levels of concern in wool felt used as acoustical damping material (on submarines) and as gasket material (on all vessels).[13]

As the largest woolen mill in an area known for historic ship production, it seems that the mill could have been a source of PCBs from historic use.



Portland Woolen Mills – Largest Mills West of Cleveland. Drawing circa 1920[14]

Portland Woolen Mills, Circa 1935

[13] https://www.federalregister.gov/articles/2012/07/18/2012-17381/polychlorinated-biphenyls-pcbs-disposition-of-request-submitted-under-tsca-section-21

[14] http://www.positivespin.us/NL2.htm

Grant Smith Porter Ship Co.

From about 1918 through the mid 1920s, the Grant Smith Porter Ship Co. was located on the opposite side of Alta Street north of the site as well as several blocks northwest of the site adjacent to the Willamette River. A large black smith shop with two furnaces occupied the south side of the block, and a crane and shipbuilding yard were located on the north side of the block. Grant Smith Porter's shipbuilding yard included piers/docks, cranes, and scaffolds.

Grant Smith Porter shipyards, Portland, Oregon, June 20, 1918[15]

Contaminated Willamette River flood sediments;

Periodically, Willamette River flood waters have lapped onto the western part of the subject site and deposited potentially contaminated river sediments in the flood's wake. Dave Johnson observed that the flood waters of 1996 inundated Cathedral Park and extended up and over the railroad tracks and into the west bay door of the machine shop[7]. A 1956 aerial photograph captures an image of residual flood waters surrounding the west and north sides of the subject site. The floods of 1861, 1890, 1943, 1945, and 1964 would have produced a similar effect[16].

[15] http://journeysofthepast.blogspot.com/

[16] Ashkenas, S. G. and Wildman, J.R., 2002, Flood Inundations/FEMA Floodplains. In D. Hulse, S. Gregory, and J. Baker (Eds.), Willamette River Basin Planning Atlas, 2nd Edition, (p. 28), Corvallis, Oregon State University Press.

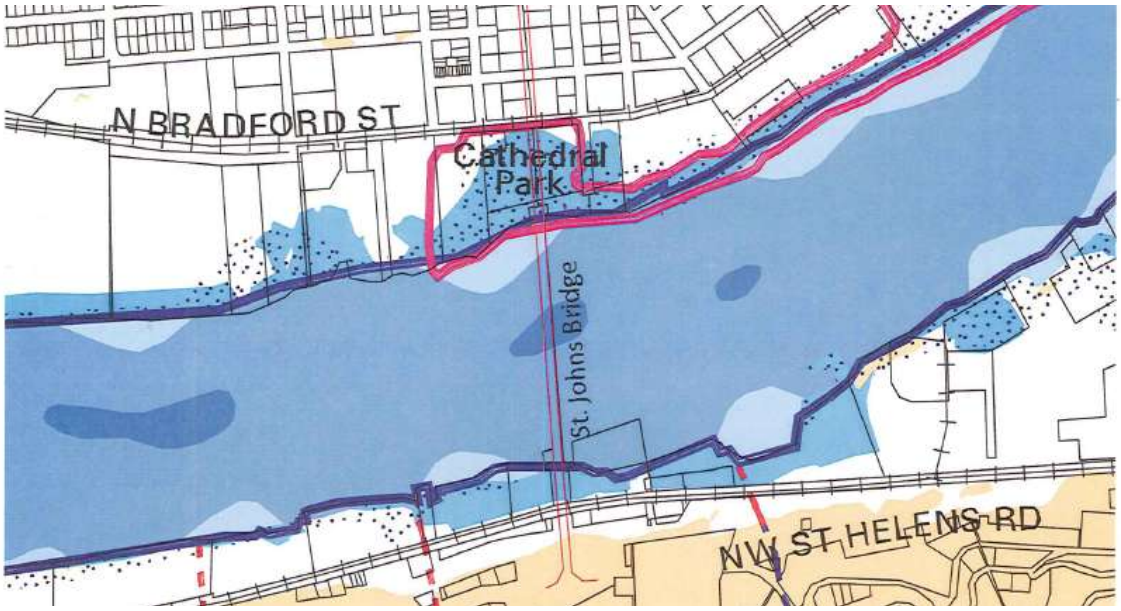


Diagram showing the extent of 1996 flood waters (Source, City of Portland[17])

The contaminated sediments deposited along the western margins of the subject site are a potential PCB source.

Feel free to call me at (503) 692-8118 if you have any questions or comments about this letter report.

Respectfully,

CREEKSIDE ENVIRONMENTAL CONSULTING, LLC

Brent Jorgensen

Brent Jorgensen, CHMM – Principal

Attachments:

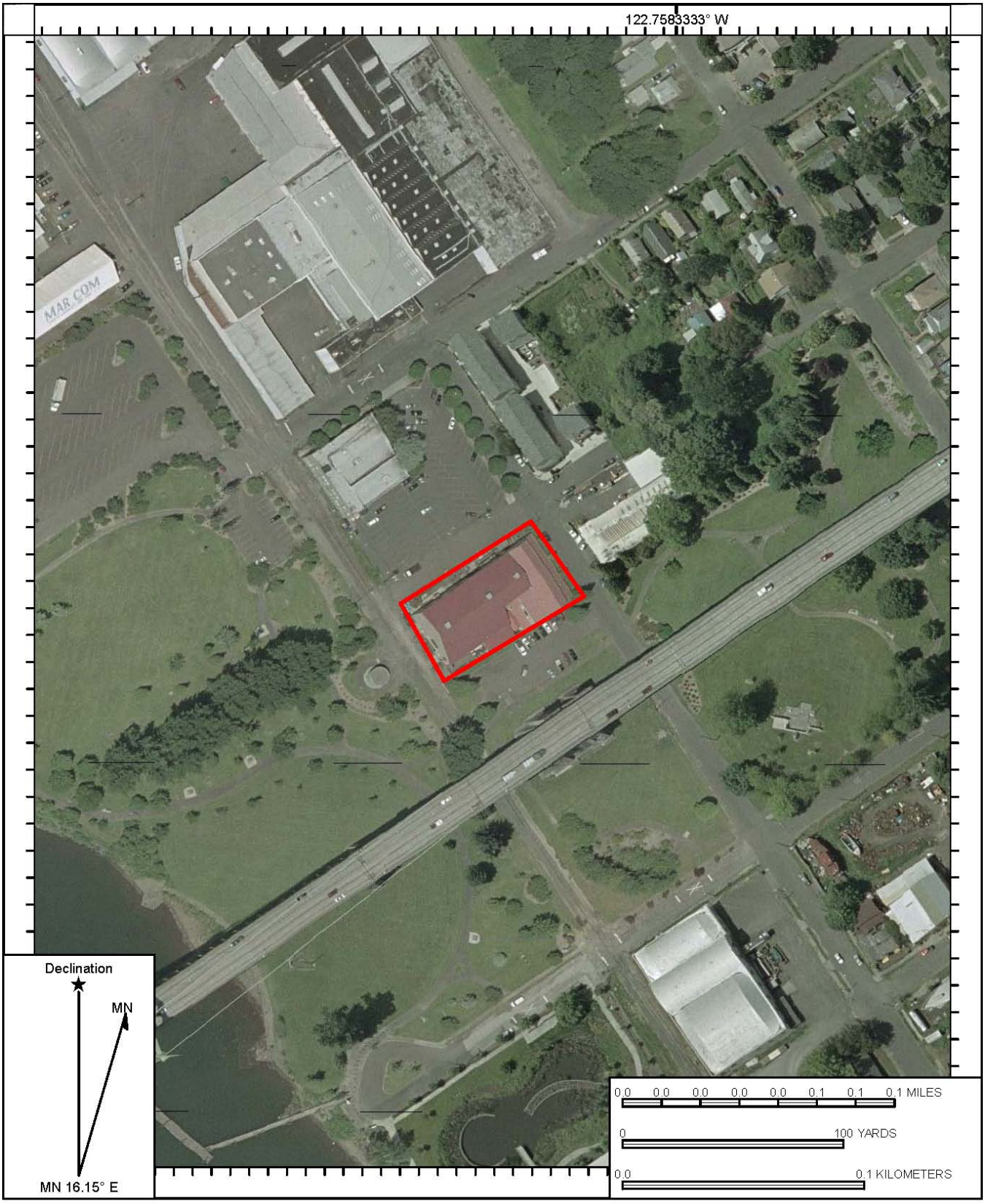
- Figure 1 – Site Vicinity Map, Figure 2 – 2002 Aerial Photo Map
- Lab Data & Sample Location Map / Onsite Wipe Sampling for PCBs

[17] http://www.portlandoregon.gov/bps/article/59022

Figures

Source: USGS Portland, OR Quadrangle, 1990

	Date Drawn: 10/2/2012 CAD File Name: 351-12023svmap(Fig1) Drawn By: LDG Approved By: NMW	Peninsula Iron Work, Inc. 6618 N Alta Avenue Portland, Oregon	**Site Vicinity Map**	Project No. 351-11023-01 Figure No. **1**



Source: USGS Orthophotograph, Portland, OR Quadrangle, NE SE Portion, 2002

	Date Drawn: 10/2/2012 CAD File Name: 351-12023aerial(Fig2) Drawn By: LDG Approved By: NMW	Peninsula Iron Work, Inc. 6618 N Alta Avenue Portland, Oregon	**2002 Aerial Photograph**	Project No. 351-12023-01 Figure **2**

PCB Wipe Samples Lab Data
Specialty Analytical

Specialty Analytical

11711 SE Capps Road
Clackamas, OR 97015
(503) 607-1331
Fax (503) 607-1336

February 27, 2012

David Johnson
Peninsula Iron Works
6618 N Alta
Portland, OR 97203

TEL: (503) 286-4461
FAX: (503) 286-4495

RE: PCB Test 1

Dear David Johnson:

Order No.: 1202183

Specialty Analytical received 6 samples on 2/22/2012 for the analyses presented in the following report.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Cindy Hillyard
Project Manager

Technical Review

Specialty Analytical

Date: *27-Feb-12*

CLIENT: Peninsula Iron Works
Project: PCB Test 1
Lab Order: 1202183

Lab ID: 1202183-01
Collection Date: 2/21/2012 4:08:00 PM
Client Sample ID: A
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB WIPE		**SW8082**				Analyst: **jrp**
Aroclor 1016	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1221	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1232	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1242	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1248	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1254	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1260	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1262	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1268	ND	0.500		µg, Total	1	2/24/2012
Surr: Decachlorobiphenyl	120	86.3-144		%REC	1	2/24/2012

Lab ID: 1202183-02
Collection Date: 2/21/2012 4:10:00 PM
Client Sample ID: B
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB WIPE		**SW8082**				Analyst: **jrp**
Aroclor 1016	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1221	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1232	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1242	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1248	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1254	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1260	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1262	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1268	ND	0.500		µg, Total	1	2/24/2012
Surr: Decachlorobiphenyl	118	86.3-144		%REC	1	2/24/2012

Specialty Analytical

Date: *27-Feb-12*

CLIENT: Peninsula Iron Works
Project: PCB Test 1
Lab Order: 1202183

Lab ID: 1202183-03
Collection Date: 2/21/2012 4:12:00 PM
Client Sample ID: C
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB WIPE		**SW8082**				Analyst: **jrp**
Aroclor 1016	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1221	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1232	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1242	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1248	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1254	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1260	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1262	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1268	ND	0.500		µg, Total	1	2/24/2012
Surr: Decachlorobiphenyl	120	86.3-144		%REC	1	2/24/2012

Lab ID: 1202183-04
Collection Date: 2/21/2012 4:15:00 PM
Client Sample ID: D
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB WIPE		**SW8082**				Analyst: **jrp**
Aroclor 1016	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1221	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1232	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1242	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1248	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1254	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1260	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1262	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1268	ND	0.500		µg, Total	1	2/24/2012
Surr: Decachlorobiphenyl	123	86.3-144		%REC	1	2/24/2012

Specialty Analytical

Date: *27-Feb-12*

CLIENT: Peninsula Iron Works
Project: PCB Test 1
Lab Order: 1202183

Lab ID: 1202183-05
Collection Date: 2/21/2012 4:17:00 PM
Client Sample ID: E
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB WIPE		**SW8082**				Analyst: **jrp**
Aroclor 1016	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1221	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1232	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1242	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1248	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1254	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1260	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1262	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1268	ND	0.500		µg, Total	1	2/24/2012
Surr: Decachlorobiphenyl	125	86.3-144		%REC	1	2/24/2012

Lab ID: 1202183-06
Collection Date: 2/21/2012 4:20:00 PM
Client Sample ID: F
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
PCB WIPE		**SW8082**				Analyst: **jrp**
Aroclor 1016	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1221	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1232	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1242	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1248	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1254	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1260	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1262	ND	0.500		µg, Total	1	2/24/2012
Aroclor 1268	ND	0.500		µg, Total	1	2/24/2012
Surr: Decachlorobiphenyl	115	86.3-144		%REC	1	2/24/2012

CLIENT: Peninsula Iron Works
Work Order: 1202183
Project: PCB Test 1

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_WIPE

Sample ID: MB-30841	SampType: MBLK	TestCode: 8082_WIPE	Units: µg, Total	Prep Date: 2/24/2012	Run ID: GCK_120224B
Client ID: ZZZZZ	Batch ID: 30841	TestNo: SW8082		Analysis Date: 2/24/2012	SeqNo: 817797

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.500									
Aroclor 1221	ND	0.500									
Aroclor 1232	ND	0.500									
Aroclor 1242	ND	0.500									
Aroclor 1248	ND	0.500									
Aroclor 1254	ND	0.500									
Aroclor 1260	ND	0.500									
Aroclor 1262	ND	0.500									
Aroclor 1268	ND	0.500									
Surr: Decachlorobiphenyl	868.8	0	1000	0	86.9	86.3	144	0	0		

Sample ID: CCV	SampType: CCV	TestCode: 8082_WIPE	Units: µg, Total	Prep Date:	Run ID: GCK_120224B
Client ID: ZZZZZ	Batch ID: 30841	TestNo: SW8082		Analysis Date: 2/24/2012	SeqNo: 817796

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016/1260	10.2	0.500	10	0	102	85	115	0	0		

Sample ID: CCV	SampType: CCV	TestCode: 8082_WIPE	Units: µg, Total	Prep Date:	Run ID: GCK_120224B
Client ID: ZZZZZ	Batch ID: 30841	TestNo: SW8082		Analysis Date: 2/24/2012	SeqNo: 817804

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016/1260	10.8	0.500	10	0	108	85	115	0	0		

Qualifiers:
ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
B - Analyte detected in the associated Method Blank

KEY TO FLAGS

Rev. May 12, 2010

A	This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards
A1	This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.
A2	This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.
A3	The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.
A4	The product appears to be aged or degraded diesel.
B	The blank exhibited a positive result great than the reporting limit for this compound.
CN	See Case Narrative.
D	Result is based from a dilution.
E	Result exceeds the calibration range for this compound. The result should be considered as estimate.
F	The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.
G	Result may be biased high due to biogenic interferences. Clean up is recommended.
H	Sample was analyzed outside recommended holding time.
HT	At clients request, samples was analyzed outside of recommended holding time.
J	The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.
K	Diesel result is biased high due to amount of Oil contained in the sample.
L	Diesel result is biased high due to amount of Gasoline contained in the sample.
M	Oil result is biased high due to amount of Diesel contained in the sample.
MC	Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.
MI	Result is outside control limits due to matrix interference.
MSA	Value determined by Method of Standard Addition.
O	Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.
Q	Detection levels elevated due to sample matrix.
R	RPD control limits were exceeded.
RF	Duplicate failed due to result being at or near the method-reporting limit.
RP	Matrix spike values exceed established QC limits; post digestion spike is in control.
S	Recovery is outside control limits.
SC	Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.
*	The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

CHAIN OF CUSTODY RECORD

E-mail: dave@peninon.com

Specialty Analytical
11711 SE Capps Road
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Contact Person/Project Manager: David Johnson
Company: Peninsula Iron Works
Address: 6618 N. Alta
Portland OR 97203
Phone: (503) 286-4461 Fax: (503) 286-4495
Project No.: 1 Project Name: PCB Test 1
Project Site Location: OR X WA ____ Other ____
Invoice To: Peninsula Iron Works P.O. No.: 027790-D

Collected By:
Signature: David M Johnson
Printed: David M Johnson

Signature: ____
Printed: ____

Turn Around Time
X Normal 5-7 Business Days
☐ Rush ____
Specify

Rush Analyses Must Be Scheduled With The Lab In Advance

3 11 SR Sample Area

Date	Time (PM)	Sample I.D.	Matrix	No. of Containers	Analyses	Comments	Lab I.D.
2/21/12	4:08	A					
"	4:10	B					
"	4:12	C					
"	4:15	D					
"	4:17	E					
"	4:20	F					

For Laboratory Use
Lab Job No. 120283
Shipped Via Specialty
Air Bill No. ____
Temperature On Receipt ____ °C
Specialty Analytical Containers? Y / N
Specialty Analytical Trip Blanks? Y / N

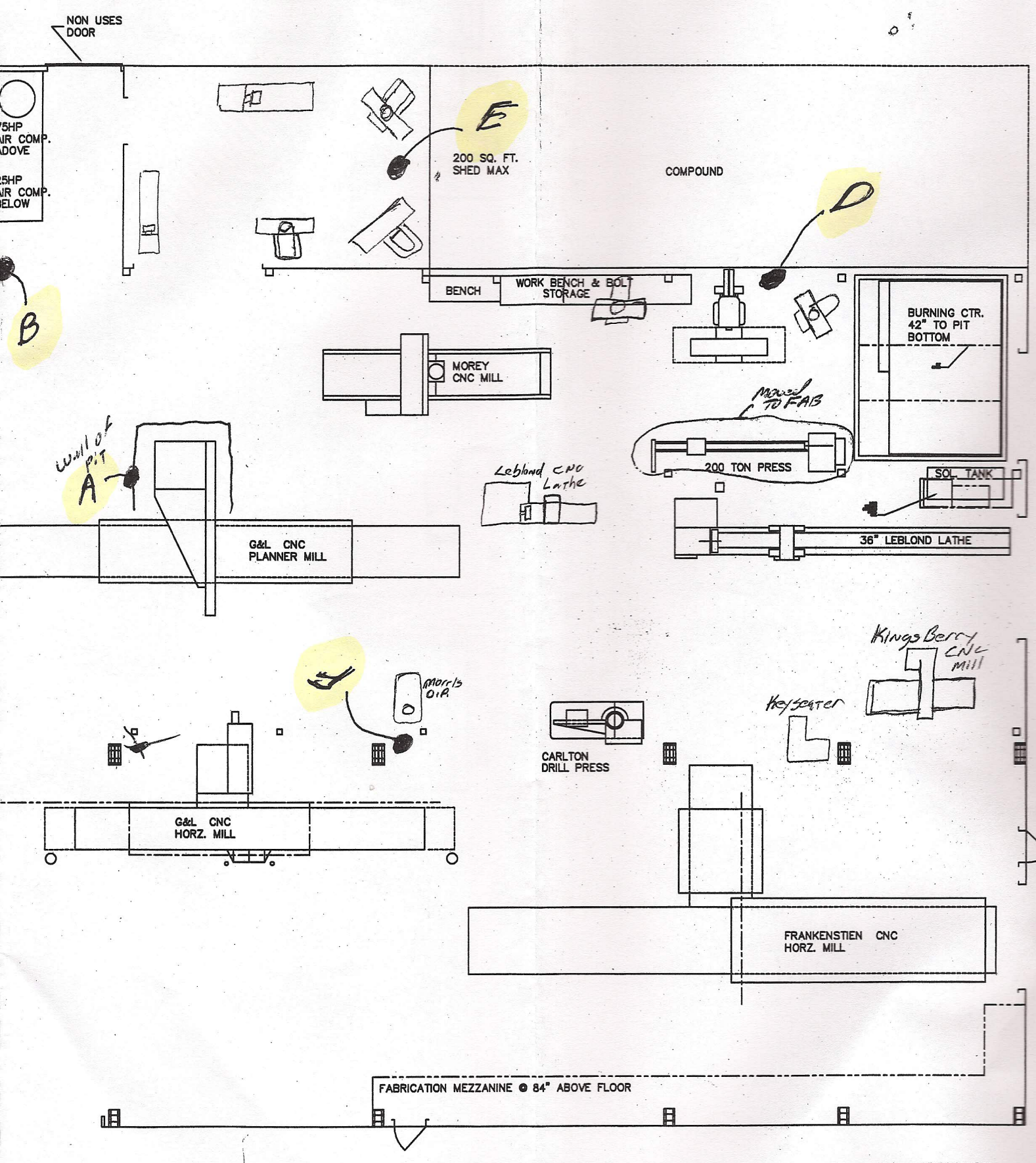
Relinquished By: / Company:	Date	Time	Received By: / Company:	Relinquished By: / Company:	Date	Time
D Johnson	2/22/12	1400	Renee McMoore	Renee Moore	2/22/12	1530

Unless Reclaimed, Samples Will Be Disposed of 60 Days After Receipt.
Samples held beyond 60 days subject to storage fee(s)

Received For Lab By: Nikki Bippes Date: 2/22/12 Time: 1530

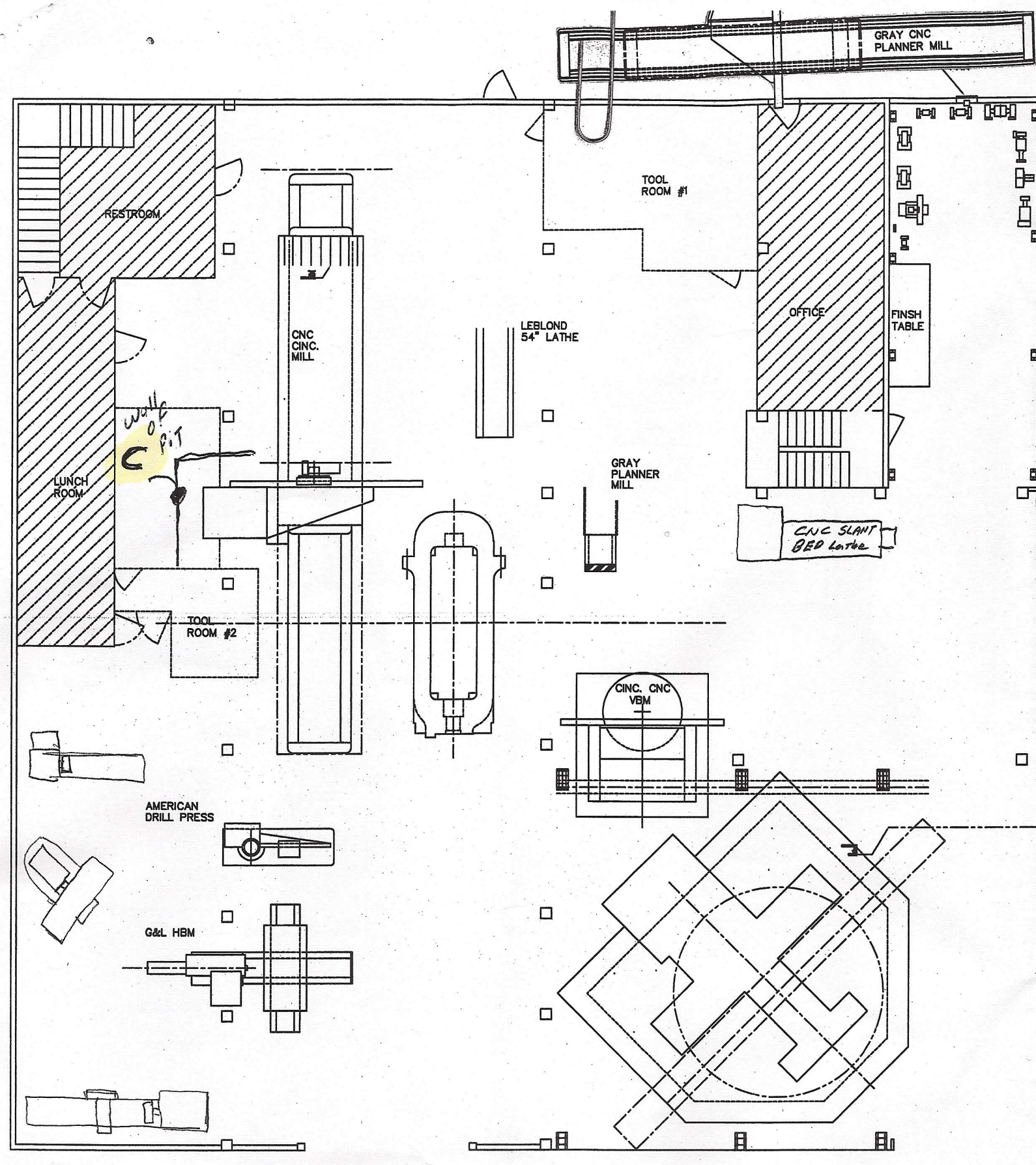
Copies: White-Original Yellow-Project File Pink-Customer Copy

Sample Location Map
PCB Wipe Samples



Draw Foot Print of:

☐ Kingsberry



P1W ACAD\P1WBLDG\P1W_13.dwg

P1W_14.dwg for
Building Only