

PSE Former Olympia MGP Site

The Olympia MGP was a primary gas supplier to Olympia for two years (1908-1910); it served as an emergency backup plant from 1910 until 1922. Several lines of evidence suggest that the arsenic concentrations detected in groundwater near the site are unrelated to historical MGP operations. The evidence includes historical information about plant operations and subsurface investigation data (soil and groundwater). Information related to this topic is summarized below and details are provided in the attached documents.

1. There are no known potential sources of arsenic at the Olympia MGP site.
 - Gas at the site was produced entirely from oil, not coal (see Brown's Directories), and arsenic was not a byproduct of the "oil gas" process. Even at facilities that produced gas from coal (which can contain arsenic), it is not common for arsenic to be a driver for cleanups at these MGP sites.
 - Some MGPs used the Thylox process (sodium thioarsenate) to scrub hydrogen sulfide from gas. However, this process was not developed until the 1920s or later, 10+ years after regular gas production ceased at the Olympia MGP.
2. Extensive chemical analyses indicate that arsenic concentrations in soil near the Olympia MGP are consistent with natural background concentrations in Washington state, supporting the conclusion that the MGP did not produce arsenic-containing wastes.
 - 83 total soil samples analyzed for arsenic – 77 samples were non-detect, and no detections exceeded the MTCA Method A soil cleanup level. Samples were collected throughout the vadose and saturated zones (2 to 40 feet bgs).
 - 62 soil samples had PQLs less than or equal to the WA 90th percentile natural background value (7 mg/kg); 21 samples had PQLs ranging from 11 to 14 mg/kg.
3. Analytical data suggest arsenic occurrence in groundwater is related to geochemical conditions.
 - The highest arsenic concentrations, and the lowest redox values (negative values indicative of reducing conditions), are detected in wells screened in the deeper portion of the saturated zone (~24 to 45 feet bgs).
4. The arsenic detections in groundwater do not appear to be associated with the MGP-related constituents that have been detected in soil and groundwater.
 - The detections of MGP-related constituents (cPAHs, TPH, benzene) are not collocated with the arsenic detections in groundwater.
5. Elevated arsenic concentrations have been reported in groundwater at other locations in downtown Olympia.
 - 16 ug/L and 140 ug/L reported in 2007 in two wells at LOTT Wastewater Treatment Plant site.
 - 5 ug/L to 62 ug/L reported in 2008 in 15 wells at Former WSDOT Testing Laboratory site.

6. Possible explanations for arsenic in groundwater:

- Unique geochemical conditions adjacent to Budd Inlet may be mobilizing naturally occurring arsenic.
- 100+ years of industrial activities on properties located within a few blocks of the site. Sanborn maps (1896 to 1968) depict numerous industrial properties in the site vicinity, such as auto repair/service shops, auto body/painting shops, machine shops/iron works/foundries, welding and electroplating operations, coal storage, plumbing and sheet metal works, boiler shops, boat building operations, printing/paint shops, tin smiths, petroleum operations/storage, lumber operations, etc.

Inez Hadley were very much interested. After the reception at the dormitory an informal dance was given at the gymnasium which was enjoyed by a large number of students of the university.

The Cane Rush between the Sophomores and Freshmen of the "U" was held on Friday. The rush was short but very exciting and was won by the Freshmen by a score of 23 to 8. It can be said for the freshmen that if they had been better acquainted with each other they would have put up a better struggle and made harder work for the sophomores.

It is the general opinion among the university students who attended the game of football Saturday between Seattle and Olympia that Olympia played a fine game. The work of Fullback, Dave Hartsuck and Quarterback Roy Heintzelman was especially commendable.

Miss Marjorie Percival, of Olympia, visited Miss Prudence Wyman, an Olympia student at the university last week.

Joseph Keho, a former Olympia boy and well known cartoonist, has left for Madison, Wisconsin, where he will take up the study of medicine. Mr. Keho has been cartoonist for the Pacific Wave for some time and was last year the cartoonist for the girls' glee club.

B. Van Vashing Hazard men to Rainier Coleman, to reach

OLYMPIA SONG WRITER PRAISED

A recent issue of the Pacific Music Journal has the following to say of J. C. Chaffer, the Olympia composer: "Among the western composers—and one of the most successful of popular music writers, is J. C. Chaffer of Olympia. During the fall four songs were published by the composer, three being put on the market at the same time, all of which enjoyed a success that would warrant a feeling of satisfaction to a composer of longer experience."

Mr. Chaffer has cleverly taken advantage of the spirit of Tacoma and Seattle in three of his popular songs. The hits, "Watch Tacoma Grow," "The Boosters" and "Seattle, Dear Seattle." The sentiment expressed coupled with the pleasing melodies, has readily won a place on the list of the past year's successes. Being, perhaps, the most prolific writer on the coast, it is a

plunger or fireman had an opportunity to jump. Fireman Ost was more favorably situated but Engineer Oum stay

injured train men here, and the character of their injuries could not be learned definitely.

DISTRIBUTING GAS MAINS

Gas for Olympia on December 1 assumed the proportions of more than a probability yesterday when three miles of four-inch mains were distributed about the city, preparatory to laying the mains. Advance preparations at the generating plant at First and Columbia streets indicate that if the company meets with no difficulty in laying the pipe the promise of gas for December can be fulfilled.

Work is progressing rapidly on the buildings on the gas plant site. The framework for the generating plant has been erected on solid foundations, and is awaiting the sheet iron for covering. The dimensions are 60 by 30 feet, one and a half story the lower one being of unusual height for machinery. Here will be installed the generator for the crude oil from which the gas will be made. Heavy cement foundations on thick piling base have been laid for the gas tanks, one holding 5,000 for the receiving tank from where it goes to the purifier, and the other 48 feet in diameter, holding 25,000 cubic feet for the storage and supply tank. About \$30,000 has already been expended on materials and further outlay will be required. The machinery has been ordered long since, and will be on the ground before long. The woodwork for the gas tank will be constructed by the Pacific Tank company of this city. The management of the new company, Mr. Kennard, and Superintendent A. E. Wright, expect to be able to keep their promise to supply consumers by December 1.

New Terminal at Washington.

WASHINGTON, D. C., Oct. 1.—After several years of work and the expenditure of about \$20,000,000 the magnificent new union terminal station in this city stands completed and ready for use, today marking its formal opening. The station to the face of the country. It was built by the Washington terminal company and will be used all the roads entering Washing

ROOSEVELT ON SOUTHERN TRIP

WASHINGTON, Oct. 1.—President Roosevelt left Washington Sunday night upon a trip that may prove epochal. For a week hence the eyes of the country will be focused upon the executive's path across the states of Ohio, Indiana and Illinois and follow him in his course down the Father of Waters from Keokuk to Memphis. Every hour of the time until he hides himself in the cane brakes of Louisiana on Saturday for two weeks of absolute relief from public duty in pursuit of large game, his movements will be watched with greater interest than when he is at the helm at the capitol.

The reasons for this peculiar interest at this particular time are several. There are sentimental, economic and industrial reasons and of more intense interest to the people far and wide for political reasons. Six important set speeches have been prepared for delivery before the return to Washington the latter part of October, and most of these will be spoken prior to the vacation hunt. Undoubtedly many important speeches will be sandwiched between the more formal addresses at various points at which brief stops will be made.

At one time or another President Roosevelt probably has met and talked with the governors of nearly all the states in the Union, but never before has he come in close personal touch with so many of them at once as will fall to his lot this week. Twenty state executives are scheduled to meet the executive of the nation at St. Louis and accompany him from there down the Mississippi river to Memphis. More of them may join the list before the journey ends. They will be republican and democratic governors. Primarily the object of the trip that brings together so many political potentates is the Great Lakes to the Gulf Deep Waterway controversy which will be held at Memphis October 1, but the whole trip is likely to be prolific in his political movements. The incentive which has prevailed

NEW COMPANIES AND REPORTS OF OLD COMPANIES.

(Received too late for correction and insertion in regular order.)

CALIFORNIA.

Santa Maria Gas and Power Co., Santa Maria.
Capital stock, \$250,000.
Bonds, \$15,000; due, 1937; interest, 6 p. c.
President, M. Thoenburg.
Secretary, R. E. Easton.
Superintendent, L. F. Chandler
Purchasing agent, L. F. Chandler.
No. wells drawn from 5.
Miles of pipe line, 25.
Price of gas, domestic, \$1.35 per 1,000.
No. domestic consumers, 500
Supplies Santa Maria.

IOWA.

Key City Gas Co., Dubuque.
Capital stock, pref., \$230,000; com., \$310,500;
ann. div., pref., 6 p. c.
Bonds, \$170,000; due 1920; interest, 5 p. c.
President, Geo. McLean.
Secretary, Wm. L. Bradley.
Treasurer, James M. Burch.
Purchasing agent, Geo. McLean.
Superintendent, Geo. McLean.
Process manufacture, Coal and Lowe.
Price coal per ton, delivered, \$4.20.
Pop. city supplied, 40,000.
No. meters, 4,882.
Miles of mains, approximate, 53.
Price gas: Light and Fuel, gross, \$1.25; net, \$1.
Candle-power, 16.32. Cal. val., 649 B. t. u.
Annual output, approx., 128,000,000 c. f.
Total gas holders capacity, 660,000 c. f.
Street main pres., max., 3.2 in., min., 2 in.
Ranges in use, 4,000.
No commercial arc lamps, 700.
Supplies Dubuque.

NEW JERSEY.

Woodbury Heights Gas Co., Woodbury Heights.
(Controlled by New Jersey Suburban Gas Co.)
Capital stock, \$5,000.
President, John S. R. Cassady.
Secretary and treas., John Mayhew.
Purchasing agent, John Mayhew.
Superintendent, John Mayhew.
Obtains gas from Pitman, Glassboro and
Clayton Gas Co.
Pop. dist. supplied, 2,234. No. meters, 20.
Miles of mains, approximate, 1; 2.5 in.
Price gas: \$1.50 per 1,000 c. f., less 10 p. c. for
cash.
No. public lamps, 20. Price per year, \$30.
Price includes repairs, care, lighting and
extinguishing.
No. hours lamp is lighted per year, moon
scale.
Annual output, approx., 288,000 c. f.
Supplies Woodbury Heights.

NEW YORK.

Williamsville Natural Gas Co., Williamsville.
General office, Prudential Building, Buffalo.
Capital stock, common \$50,000.

President, J. W. Stearn.
Manager, J. W. Stearns.
Treasurer, Edward C. Koester.
No. wells drawn from, 2.
Price of gas, gross, domestic, 32.5c. per 1,000
c. f.
No. domestic consumers, 262.
Value gas supplied, \$6,069.
Supplies Williamsville.

PENNSYLVANIA.

Emaus Gas and Fuel Co., Emaus.
(Plant under construction.)
Capital stock, \$75,000.
Bonds, \$75,000; due, 1939; int. rate, 5 p. c.
President, Simon Friedberger.
Manager Jos. L. Sweigard.
Purchasing agent, Jos. L. Sweigard.
Miles of pipe line, 5.5.
Price gas, gross; domestic, \$1.50 per 1,000 c. f.
No. domestic consumers, 400.
Supplies Emaus.

TEXAS.

Weatherford Gas Light, Heat and Power Co., Weather-
ford.
Capital stock, pref., \$12,000; com., \$23,500.
President, C. C. Barthold.
Secretary and treasurer, John H. Prince.
Purchasing agent, John H. Prince.
Process manufacture, Lowe.
Pop. dist. supplied, 8,000. No. meters, 200.
Miles of mains, approximate 7; 2 to 8 in.
Price gas, per 1,000 c. f., \$1.50.
No. public lamps, 8; price, \$99 per year.
Consumption per burner, per hour, 20 c. f.
No. hours lighted per year, 4,327.
Price includes care, repairs, lighting and
extinguishing.
Annual sales, approximate, 1909, 4,000,000.
Candle power, 20.
Supplies Weatherford.

WASHINGTON.

Olympia Gas Co., Olympia.
(Operated by H. M. Byllesby and Company.)
Manager, A. B. Groesbeck.
Process manufacture, Crude oil.
Price oil per gallon, delivered, 2.5c.
Calorific value, 600 B. t. u.
Gas holder capacity, 30,000 c. f.
Miles of mains, approximate, 5.8.
Street main pressures, max., 3; min., 1.5.
Gas unaccounted for, 10 p. c.
Annual sales, approximate, 4,500,000 c. f.
Pop. of city, 13 000.
Pop. dist. supplied, 5,000.
No. consumers, 250.
Price gas: Light and Fuel, gross, \$1.75 to
\$1.50; net, \$1.50 to \$1.25.
Supplies Olympia.

PEDESTRIANS, horse and motor car drivers appreciate the uniform illumination produced by **Welsbach STREET LIGHTS**; there are no sharp lights and shadows. See advertisement, page xxvi.

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Annual sales, approx., 65,000,000 c. f.
 Gas unaccounted for, 15 p. c.
 Max. day's send out, 307,000 c. f.
 Total gas holders capacity, 290,000 c. f.
 Miles of mains, approx., 78.18.
 Street main pressures, max., 3.5 in.; min., 3 in.
 High pressure mains, miles, 32.5; pressure, 17 lbs.
 Pop. dist. supplied, 27,000; of city, 24,814.
 No. consumers, 3,722.
 No. meters, reg., 1,385; prepay., 2,337.
 Price gas: Light and Fuel, gross, \$1.50; net, \$1.35.
 No. Humphrey public arcs, 16 posts, 3 lamps each; lighted 1,825 hours per year.
 Contract includes repairs, care, lighting and extinguishing.
 Ranges in use, 3,176; heaters, 721; water heaters, 1,224.
 No. commercial gas arc lamps, 1,242.
 Supplies Everett, Snohomish, Monroe and Lowell.

ELECTRICAL DEPARTMENT.

System, 3-phase, 60 cycle.
 Sub-station capacity: Lighting and power, 1,000 kw.
 Voltage: Incand., 110; power, 220.
 City lighting contract: Hours lighted per year: Arc and incand., all night, every night.
 No. public arcs, 78; 370 watt. Price per year, \$72.
 No. public incand., 90; 75 and 100 watt. Price per year, \$18 and \$30.
 Commercial lighting: No. arcs, 22; No. incand., 10,856.
 Price per kw. hr., gross, 5.5c.
 Other lamps, 2 flaming arcs.
 Power circuits: No. motors, 58; price per kw. hr., 6c. to 2.2c.
 Power used also for 563 flatirons; 17 electric signs; 75 appliances.
 No. meters, 1,054.
 Output of station, kw. for year, approx., 848,500.
 Current purchased from Seattle-Puget Sound Traction, Light & Power Co.
 Supplies Snohomish and Monroe.

Olympia Gas Co., Olympia.

RRs.: No. Pac.; Port. T. So. S. Bs.: From San Francisco and S., T. & O. Route; Shelton Trans. Ex.: No.; Gt. No.

Operated by H. M. Byllesby & Co., Inc.
 Capital stock, pref., \$50,000; com., \$50,000.
 Bonds, \$120,000; due 1945; interest, 5 p. c.
 President, Elmer Dover.
 General manager, Elmer Dover.
 Secretary and treas., M. A. Morrison.
 Asst. mgr., Geo. Dielmann.
Gas purchased from Tacoma Gas Co. Emergency oil gas plant.
 Price oil per gal. delivered, 2.58c.
 Candle-power, 16.
 Calorific value, 600 B. t. u.
 Miles of mains, approx., 13.6.

Street main pressures, max., 4 in.; min., 2.5 in.
 High pressure mains, 4.6 miles; pressure, 5 lbs.
 Max. day's send out, 60,000 c. f.
 Gas holder capacity, 30,000 c. f.
 Annual sales, approx., 19,000,000 c. f.
 Gas unaccounted for, 9 p. c.
 Pop. of city, 7,000.
 Pop. dist. supplied, 5,000; of city, 6,996.
 No. consumers, 893.
 No. meters, reg., \$17; prepay., 76.
 Price gas: Light and Fuel, gross, \$1.35 to 80c.; net, \$1.25 to 70c.
 Gas appliances in use: Ranges, 700; heaters, 300; water heaters, 290.
 No. commercial gas arc lamps in use, 200.
 Supplies Olympia, Sherlock, Tumwater and Lacey.

Key City Light and Power Co., Port Townsend.

RRs.: Port. T. So. S. Bs.: D. C. & P. S. Route; Straits Co. Int. SS.; Hastings Co. Ex.: G. N.; No.; W. T.

(Successors to Port Townsend Gas Works.)
 Capital stock, \$80,000.
 President, Peter Mitty.
 Secretary, J. M. Kinkaid.
 Treasurer, John Siebenbaum.
 Gen. mgr. and pur. agent, J. M. Kinkaid.
 Process manufacture, Coal.
 Price coal per ton, delivered, \$4.80.
 Miles of mains, approximate, 6.
 Candle-power, 18; calorific value, 650 B. t. u.
 Annual sales, approx., 4,300,000 c. f.
 Max. day's send out, 14,000 c. f.
 Total gas holders capacity, 43,000 c. f.
 Street main pres., max., 4 in.; min., 3 in.
 Pop. dist. supplied, 3,500; of city, 4,181.
 No. meters, reg., 140; prepay., 60.
 No. consumers, 200.
 Price gas: Light, gross, \$2; net, \$1.50.
 Ranges, 74; heaters, 20; water heaters, 9.
 Supplies Port Townsend.

ELECTRICAL DEPARTMENT.

Generating capacity: Lighting, 150 kw.
 Commercial lighting: 4.5c. to 15c., according to hours used. Dom. rates 16c. for 1st 30 kw.; 8c. for all above.
 Lamps used, 75 watt tungsten street series.
 Power circuits: No. motors, 12; price per kw. hr., 3c. to 15c. Disc., 10 p. c.
 Output of station, kw. per year, 350,000.
 Generating power used, Steam; rated h. p. 250.
 Cost of station fuel oil, per bbl., 95c.

Seattle Lighting Co., Seattle.

RRs.: G. N.; No. Pac.; Col. & P. S.; C., M. & St. P. S. Bs.: Am. H. SS. S. Bs. from San Francisco and Seattle to Alaska, stopping en route at Vancouver and Victoria, B. C.; Bell Bay Trans.; S. & E. Nav.; B. C. & P. S.; Inland Nav. S. Bs. from Tacoma, Straits Co.; Int. SS.; Western St. Nav.; Thompson Co.; S. T. & O.

For the VERY LATEST in high candle power street lamps inquire about THE **Welsbach** STREET LIGHTING COMPANY OF AMERICA'S high pressure gas lamp. See advertisement, page xxxii.

No. public incand., 94—155 watts, 363—72 watts, 41—60 cp., 14—150 watts.
 Commercial lighting: Incand. 4,220 kw. equiv.
 Price per kw. hr.: Residential lighting, 8c., first 60 kw. hr. per month; 6c. all over net. Suburban lighting, 10c. to 60 kw. hr. per month per active kw.; 7.5c. over 60 kw. hrs. per month per active kw.
 Power circuits: Motors, 691.
 Price current per kw. hr., less than 1 h. p., 5c. and 6c.; 1 to 20 h. p., 5c. to 1.5c.; 21 to 100 h. p., 5c. to 1¼c.; 101 h. p. and over 5c. to 1c. Disc., 25 p. c. if power is used "off peak" for customers with 21 h. p. or more.
 Output of station, gen. and purch., kw. for year, 22,083,700.
 Generating power: Water, rated h. p., 3,200; Steam, rated h. p., 3,728.
 Capacity of purchased power, 5,000 kw.

North Pacific Public Service Co., Centralia.

RR.: No. Pac. Ex.: No.

(Formerly Centralia & Chehalis Gas Co.)
 Controlled by Seymour & Brewer, Tacoma, Wash.)

(For capitalization bonds, officers and companies consolidated, see "Parent Companies.")

Gen'l manager and pur. agent, F. C. Brewer.
 Local manager, M. C. Hancock.

Process manufacture, Coal.
 Candle-power, 16.

Calorific value, 600 B. t. u.

Price coal per ton, delivered, \$7.

Annual production, 19,000,000 c. f.

By-products made: Coke, 1,144 tons; tar, 16,674 gals.

Gas holder capacity, 117,000 c. f.

Holder pressure, max., 3 in.

High pressure mains, 22 miles; pressure, 5 lbs.

Max. day's send out, 75,000 c. f.

Annual sales, approx., 16,000,000 c. f.

Gas unaccounted for, 15 p. c.

By-products sold: Coke, 300 tons; tar, 16,674 gals.

Pop. of city, 7,311, Centralia; 4,507, Chehalis.

No. consumers, 1,015.

No. meters, reg., 576; prepar., 439.

Price of gas: Light and Fuel, \$1.85 gross.

1st 1,000 c. f.; next 4,000 c. f., \$1.70-\$1.65;

next 5,000 c. f., \$1.60-\$1.55; next 5,000

c. f., \$1.50-\$1.45; over 15,000 c. f., 85c.-80c.

Gas appliances in use: Ranges, 490; heaters, 480; water heaters, 140.

No. commercial gas arc lamps in use, 440.

Supplies Centralia and Chehalis.

Puget Sound Gas Co., Everett.

RRs.: G. N.; No. Pac. S. Bs.: B. C. & P. S.

Route; S. & E. Nav.; Inland Nav. Ex.:

No.; G. N.

(Successor to Everett Gas Co.)

(Controlled by H. M. Byllesby & Co.)

Capital stock, pref., \$225,000; common., \$950,000.

Annual dividend, pref., 5 p. c.

Vice-pres. and general manager, D. J. Young.
 Asst. treas., J. P. Simpson.
 Manager and pur. agent, J. G. Bouras.
 Process manufacture, Lowe (water gas).
 Calorific value, 600 B. t. u.
 Annual production, 57,358,000 c. f.
 By-products made: Tar, 90,493 gals.
 Total gas holders capacity, 300,000 c. f.
 Holder pressure, max., 4.5 in.
 Max. day's send out, 263,000 c. f.
 Miles of mains, approx., 58.
 Street main pressures, max., 4.5 in.; min., 3 in.

High pressure mains, miles, 20.69; pressure, 22 lbs.

Annual sales, approx., 50,019,000 c. f.

Gas unaccounted for, 12.6 p. c.

Pop. dist. supplied, 36,200; of cities, 36,000.

No. consumers, 2,869.

No. meters, reg., 1,887; prepar., 982.

Price gas: Light and Fuel, basic rate, net,

\$2.25 to 75c.

Ranges in use, 2,683; heaters, 868; water

heaters, 1,273.

No. commercial gas arc lamps, 683.

Supplies Everett, Snohomish and Monroe.

ELECTRICAL DEPARTMENT.

System, 3-phase, 60 cycle; arcs, magnetic D. C.; incand. 4 amp. D. C. and A. C.

Sub-station capacity: Lighting and power, 1,000 kw.

Voltage: Incand., 110; power, 220.

City lighting contract: Hours lighted per year, 3,830.

No. public arcs, 58; 310 watt. Price per year, \$72.

No. public incand., 85; 60 c. p. Price per year, \$18.

Commercial lighting: No. incand., 11,572.

Price per kw. hr., gross, 9c. to 2.7c. Dis., 10 p. c.

Power circuits: No. meters, 49; price per kw. hr., 5.4c. to 1.98c. Discount, 10 p. c.

Power used also for flatirons, electric signs and appliances.

No. consumers, 1,084.

Output of station, kw. for year, 1,143,040.

Current purchased from Puget Sound Trac-

tion, Light & Power Co.

Supplies Snohomish and Monroe.

Olympia Gas Co., Olympia.

RRs.: No. Pac.; Port. T. So.; O. W. S. Bs.:

From San Francisco and S., T. & O.

Route; Shelton Trans. Ex.: No.; Gt. No.; Am.

Gen. mgr., D. J. Young.

Controlled by Tacoma Gas and Fuel Co.

Gas purchased from Tacoma Gas and Fuel Co.

Annual purchase, 22,542,730 c. f.

Emergency oil gas plant.

Calorific value, 600 B. t. u.

Gas holder capacity, 25,000 c. f.

Holder pressure, max., 4 in.

Miles of mains, approx., 18.86.

Street main pressures, max., 4 in.; min., 3.5 in.

High pressure lbs.

Annual sales.

Gas unaccounted for.

Pop. dist. supplied.

No. consumers.

No. meters, reg.

Price gas: Light and Fuel.

\$1.50 to 75c.

Gas appliances in use.

353; water heaters, 140.

No. commercial gas arc lamps, 683.

Supplies Olympia.

Key City Light & Power Co., Port.

Route; S. & E. Nav.

Ex.: G. N.

Capital stock, \$1,000,000.

President, Pease, J. G.

Secretary, J. G. Pease.

Treasurer, J. G. Pease.

Gen. mgr. and pur. agent, J. G. Pease.

Process manufacture, Coal.

Price coal per ton, delivered, \$7.

Candle-power, 16.

Total gas holders capacity, 300,000 c. f.

Max. day's send out, 263,000 c. f.

Miles of mains, approx., 58.

Street main pressures, max., 4.5 in.; min., 3 in.

Annual sales, approx., 50,019,000 c. f.

Pop. dist. supplied, 36,200; of cities, 36,000.

No. consumers, 2,869.

No. meters, reg., 1,887; prepar., 982.

Price gas: Light and Fuel, basic rate, net,

\$2.25 to 75c.

Ranges in use, 2,683; heaters, 868; water

heaters, 1,273.

No. commercial gas arc lamps, 683.

Supplies Everett, Snohomish and Monroe.

ELECTRICAL DEPARTMENT.

System, 3-phase, 60 cycle; arcs, magnetic D. C.; incand. 4 amp. D. C. and A. C.

Sub-station capacity: Lighting and power, 1,000 kw.

Voltage: Incand., 110; power, 220.

City lighting contract: Hours lighted per year, 3,830.

No. public arcs, 58; 310 watt. Price per year, \$72.

No. public incand., 85; 60 c. p. Price per year, \$18.

Commercial lighting: No. incand., 11,572.

Price per kw. hr., gross, 9c. to 2.7c. Dis., 10 p. c.

Power circuits: No. meters, 49; price per kw. hr., 5.4c. to 1.98c. Discount, 10 p. c.

Power used also for flatirons, electric signs and appliances.

No. consumers, 1,084.

Output of station, kw. for year, 1,143,040.

Current purchased from Puget Sound Trac-

tion, Light & Power Co.

Supplies Snohomish and Monroe.

Seattle Lighting & Power Co., Seattle.

RRs.: G. N.

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SS. Co.

G. N.;

Capital stock, \$1,000,000.

Ann. div. p.

Bonds, \$35

ref. 5s

1920.

EASY WORKING DIE STOCKS 1/8 TO 12 INCH THE BORDEN COMPANY

BEAVER

SQUARE END PIPE CUTTERS 1/8 TO 6 INCH WARREN, OHIO, U. S. A.



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 4 in.; min.,

High pressure mains, 4.62 miles; pressure, 10 lbs.
 Annual sales, approx., 20,466,044 c. f.
 Gas unaccounted for, 9.1 p. c.
 Pop. dist. supplied, 1,030; of city 10,000.
 No. consumers, 989.
 No. meters, reg., 903; prepay., 86.
 Price gas: Light and Fuel, basic rate, net, \$1.50 to 85c.
 Gas appliances in use: Ranges, 795; heaters, 353; water heaters, 325.
 No. commercial gas arc lamps in use, 150.
 Supplies Olympia, Sherlock and Lacey.

Key City Light and Power Co., Port Townsend.
 RRs.: Port. T. So. S. Bs.: B. C. & P. S. Route; Straits Co. Int. SS.; Hastings Co. Ex.: G. N.; No.; W. F.
 Capital stock, \$80,000.
 President, Peter Mitty.
 Secretary, J. M. Kinkaid.
 Treasurer, John Siebenbaum.
 Gen. mgr. and pur. agent, J. M. Kinkaid.
 Process manufacture, Coal.
 Price coal per ton, delivered, \$4.10.
 Candle-power, 18; calorific value, 650 B t. u.
 Total gas holders capacity, 40,000 c. f.
 Max. day's send out, 10,000 c. f.
 Miles of mains, approximate, 6.5.
 Street main pres., max., 8 in.; min., 2 in.
 Annual sales, approx., 3,500,000 c. f.
 Pop. dist. supplied, 3,000; of city, 4,181.
 No. meters, reg., 160; prepay., 65.
 No. consumers, 250.
 Price gas: Light, gross, \$2; net, \$1.80.
 Ranges, 100; heaters, 21; water heaters, 60.
 Supplies Port Townsend.

ELECTRICAL DEPARTMENT.

System: 3-phase, A. C.
 Sub-station capacity, 500 kw.
 Commercial lighting: 4.5c. to 11c., according to hours used. Dom. rates 11c. for 1st 60 kw.; 6.5c. for all above.
 Lamps used, 80 c. p., Type C. street series.
 Power circuits: No. motors, 17; price per kw. hr., 2c. to 7c. Disc., 10 p. c.
 Output of station, kw. hrs. for year, 400,000.
 Generating power used, Gas Engine auxiliary plant; rated h. p. 100.
 Cost of station fuel oil, 11c. per gal.
 Power furnished from Olympic Power Co.

Seattle Lighting Co., Seattle.
 RRs.: G. N.; No. Pac.; Col. & P. S.; C., M. & St. P. S. Bs.: Am. H. SS. S. Bs. from San Francisco and Seattle to Alaska, stopping en route at Vancouver and Victoria, B. C.; Bell Bay Trans.; S. & E. Nav.; B. C. & P. S.; Inland Nav. S. Bs. from Tacoma, Straits Co.; Int. SS.; Western St. Nav.; Thompson Co.; S. T. & O. Route; Lower F. Riv. Route; Alaska SS. Co.; No. Nav. Co. Ex.: No.; W. F.; G. N.; Con.
 Capital stock, pref., \$1,000,000; com., \$3,000,000.
 Ann. div. pref., 6 p. c.; com, 2 p. c.
 Bonds, \$358,000 1st 5s, due 1944; \$5,505,500 ref. 5s due 1949; \$2,000,000 deb. 6s due 1920.

President, J. D. Farrell.
 Vice-president, Rufus C. Dawes.
 Secretary, H. R. Clise.
 Treasurer, F. K. Lane.
 Engineer, Jos. C. Markley.
 Manager and pur. agent, F. K. Lane.
 Superintendent, S. E. Hutchinson.
 New bus. mgr., S. R. Hutchinson.
 Process manufacture, Coal and Lowe.
 Also manufacture coke oven gas (See By-Product Coke-Oven Dept.)
 Annual prod.: Coal gas, 877,000,000 c. f.; water gas, 609,000,000 c. f.
 Candle-power, 19.
 Total gas holders capacity, 3,700,000 c. f.
 Max. day's send out, 3,500,000 c. f.
 Miles of mains, approx., 588.
 Street main pressures, max., 7 in.; min., 5 in.
 Annual sales, approx., 1,405,000,000 c. f.
 Gas unaccounted for, 7 p. c.
 Pop. dist. supplied, 250,000; of city, 237,194.
 No. meters, reg., 44,856; prepay., 6,677.
 Price gas: Light and Fuel, \$1.25 to 60c. net.
 Min. charge, 65c.
 Ranges, 33,222; heaters, 8,095; water heaters, 13,402.
 No. commercial gas and arc lamps, 956.
 Supplies Seattle and suburbs.

Spokane Gas and Fuel Co., Spokane.
 RRs.: G. N.; Spok. & In. Emp.; O. R. R. & Nav.; No. Pac.; Spok. Int. Ex.: No.; West.; G. N.; Pac.

(Operated by Doherty Organization.)
 (For capitalization and bonds, see Appendix.)
 President, H. L. Doherty.
 1st Vice-pres., F. W. Frueauff.
 Treasurer, Harry Warner.
 Secretary, R. Aubrey Smith.
 Pur. agent, G. W. Rupert.
 General manager, Harry Warner.
 Superintendent, Ralph B. Stitzer.
 New bus. mgr., Luther Gaston.
 Process manufacture, Coal and Lowe.
 Annual production: Coal gas, 241,500,600 c. f.; water gas, 22,187,100 c. f.
 By-products made: Coke, 17,100 tons; tar, 263,096 gals.; ammonia, 103,297 lbs.
 Price coal per ton, delivered, \$6.
 Price oil, per gal., 7.6c.
 Calorific value, 600 B. t. u.
 Gas holder capacity, 455,000 c. f.
 Street mains, approx., 139.04 miles.
 Max. day's send out, 881,000 c. f.
 Annual sales, approx., 234,054,300 c. f.
 Gas unaccounted for 10.35 p. c.
 By-products sold: Coke, 5,656 tons; tar, 408,766 gals.; ammonia, 106,942 lbs.
 Pop. of city supplied (est.), 135,000.
 No. consumers, 9,981.
 No. meters, 10,585.
 Price gas: First 1,000 c. f., \$1.80; next 1,000 c. f., \$1.65; next 3,000 c. f., \$1.55; next 5,000 c. f., \$1.45; next 5,000 c. f., \$1.40; next 20,000 c. f., \$1.30; next 15,000 c. f., \$1.10; over 50,000 c. f., 90c.
 Ranges in use, 10,270; heaters and grates, 2,286; water heaters, 3,010.
 No. commercial gas arc lamps, 250.
 Supplies Spokane.

Are you tired of paying repair bills on gas mains ?

ULCO LEAD WOOL is the answer
 UNITED LEAD COMPANY III BROADWAY, NEW YORK.



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Arsenic in Soil
Soil Arsenic Results for 2008-2010
On-property and Off-property Investigations
Former Olympia MGP Site
Puget Sound Energy

Sample Location	Sample ID	Sample Date	Arsenic Concentration ¹ (mg/kg)	Sample Depth (ft bgs)
TP-1/MW-1	TP1-3.0	8/6/2008	12 U	3.0
	MW1-2-070	8/22/2008	12 U	7.0
TP-2/MW-3	TP2-4.5	8/6/2008	11 U	4.5
	MW3-03-080	8/20/2008	12 U	8.0
TP-3/SB-6	TP3-2.5	8/6/2008	11 U	2.5
	TP3-6.5	8/6/2008	13 U	6.5
TP-4	TP4-3.5	8/6/2008	11 U	3.5
	TP4-7.0	8/6/2008	13 U	7.0
	TP4-7.0-Dup*	8/6/2008	14 U	7.0
TP-5/SB-5	TP5-3.5	8/6/2008	11 U	3.5
	TP5-6.0	8/6/2008	13 U	6.0
	SB5-9-220	8/21/2008	15	22.0
	SB5-18-400	8/21/2008	12 U	40.0
	SB5-18-400-D*	8/21/2008	12 U	40.0
TP-6	TP6-2.5	8/12/2008	11 U	2.5
TP-7/SB-7	TP7-4.0	8/6/2008	14 U	4.0
	TP7-7.0	8/6/2008	12 U	7.0
MW-4	MW4-02-040	8/20/2008	12 U	4.0
	MW4-03-060	8/20/2008	11 U	6.0
SB-8	SB8-1-020	8/22/2008	11 U	2.0
	SB8-3-060	8/22/2008	11 U	6.0
MW-5	MW-5-3.0	11/2/2009	5.7 U	3.0
	MW-5-8.0	11/2/2009	6.5 U	8.0
	MW-5-15.5	11/2/2009	6.5 U	15.5
MW-7	MW-7-3.0	11/2/2009	5.6 U	3.0
	MW-7-5.5	11/2/2009	5.8 U	5.5
	MW-7-8.0	11/2/2009	6.0 U	8.0
	MW-7-15.5	11/2/2009	5.7 U	15.5
MW-8	MW-8-3.0	11/2/2009	5.3 U	3.0
	MW-8-8.0	11/2/2009	6.2 U	8.0
	MW-8-15.5	11/2/2009	6.4	15.5
SB-9	SB-9-3.0	11/3/2009	5.2 U	3.0
	SB-9-8.0	11/3/2009	6.0 U	8.0
	SB-9-10.5	11/3/2009	6.0 U	10.5
SB-10	SB-10-5.5	11/3/2009	6.0	5.5
	SB-10-10.5	11/3/2009	5.9 U	10.5
SB-11	SB-11-3.0	11/3/2009	6.0 U	3.0
	SB-11-8.0	11/3/2009	6.4 U	8.0
	SB-11-10.5	11/3/2009	7.9	10.5
SB-12	SB-12-3.0	11/4/2009	5.5 U	3.0
	SB-12-8.0	11/4/2009	5.9 U	8.0
	SB-12-10.5	11/4/2009	5.7 U	10.5
Natural background concentration ²			7	
MTCA Method A soil cleanup level ³			20	

Sample Location	Sample ID	Sample Date	Arsenic Concentration ¹ (mg/kg)	Sample Depth (ft bgs)
SB-13	SB-13-3.0	11/4/2009	5.6 U	3.0
	SB-13-8.0	11/4/2009	6.1 U	8.0
	SB-13-10.5	11/4/2009	6.3 U	10.5
SB-14	SB-14-3.0	11/3/2009	5.7 U	3.0
	SB-14-8.0	11/3/2009	6.3 U	8.0
	SB-14-8.0-D*	11/3/2009	7.8	8.0
	SB-14-10.5	11/3/2009	5.9 U	10.5
SB-15	SB-15-3.0	11/4/2009	5.5 U	3.0
	SB-15-8.0	11/4/2009	6.0 U	8.0
	SB-15-10.5	11/4/2009	6.2 U	10.5
SB-16	SB-16-3.0	11/4/2009	5.4 U	3.0
	SB-16-8.0	11/4/2009	7.1 U	8.0
	SB-16-10.5	11/4/2009	6.0 U	10.5
SB-17	SB-17-10.5	11/4/2009	5.8 U	10.5
	SB-17-10.5-D*	11/4/2009	5.8 U	10.5
MW-00D	MW-00D-10.5	12/2/2010	5.9 U	10.5
	MW-00D-15.5	12/2/2010	5.9 U	15.5
	MW-00D-20.5	12/2/2010	5.7 U	20.5
	MW-00D-25.5	12/2/2010	5.5 U	25.5
	MW-00D-30.5	12/2/2010	5.7 U	30.5
MW-12S/12D (shallow/deep well pair)	MW-12D-10.5	11/30/2010	5.5 U	10.5
	MW-12D-15.5	11/30/2010	5.8 U	15.5
	MW-12D-20.5	11/30/2010	5.7 U	20.5
	MW-12D-25.5	11/30/2010	5.7 U	25.5
	MW-12D-30.5	11/30/2010	6.6 U	30.5
MW-13S/13D (shallow/deep well pair)	MW-13D-10.5	11/29/2010	5.9 U	10.5
	MW-13D-15.5	11/29/2010	6.0 U	15.5
	MW-13D-20.5	11/29/2010	5.8 U	20.5
	MW-13D-25.5	11/29/2010	5.7 U	25.5
	MW-13D-30.5	11/29/2010	5.8 U	30.5
SB-20	SB-20-8.0	12/1/2010	6.2 U	8.0
	SB-20-15.5	12/1/2010	5.8 U	15.5
	SB-20-20.5	12/1/2010	5.6 U	20.5
	SB-20-25.5	12/1/2010	6.0 U	25.5
SB-21	SB-21-8.0	12/1/2010	5.8 U	8.0
	SB-21-15.5	12/1/2010	6.2 U	15.5
	SB-21-20.5	12/1/2010	5.6 U	20.5
	SB-21-25.5	12/1/2010	10	25.5
	SB-21-30.5	12/1/2010	6.1 U	30.5
SB-22	SB-22-2.5	12/1/2010	5.3 U	2.5
	SB-22-10.5	12/1/2010	6.5 U	10.5
Natural background concentration ²			7	
MTCA Method A soil cleanup level ³			20	

Notes:

mg/kg = milligrams per kilogram

ft bgs = feet below ground surface

U = analyte was not detected at or above the practical quantitation limit (PQL) shown.

Detections are shown in **bold** typeface.

¹Analyzed by EPA Method 6010B/7471A/7196A.

²Natural background concentration of arsenic in Washington state soil from Ecology Publication #94-115 (90th percenti

³MTCA Method A soil cleanup level for unrestricted land use (WAC 173-340-740[2]).

Arsenic in Soil - Summary Statistics

Soil Arsenic Results for 2008-2010

On-property and Off-property Investigations

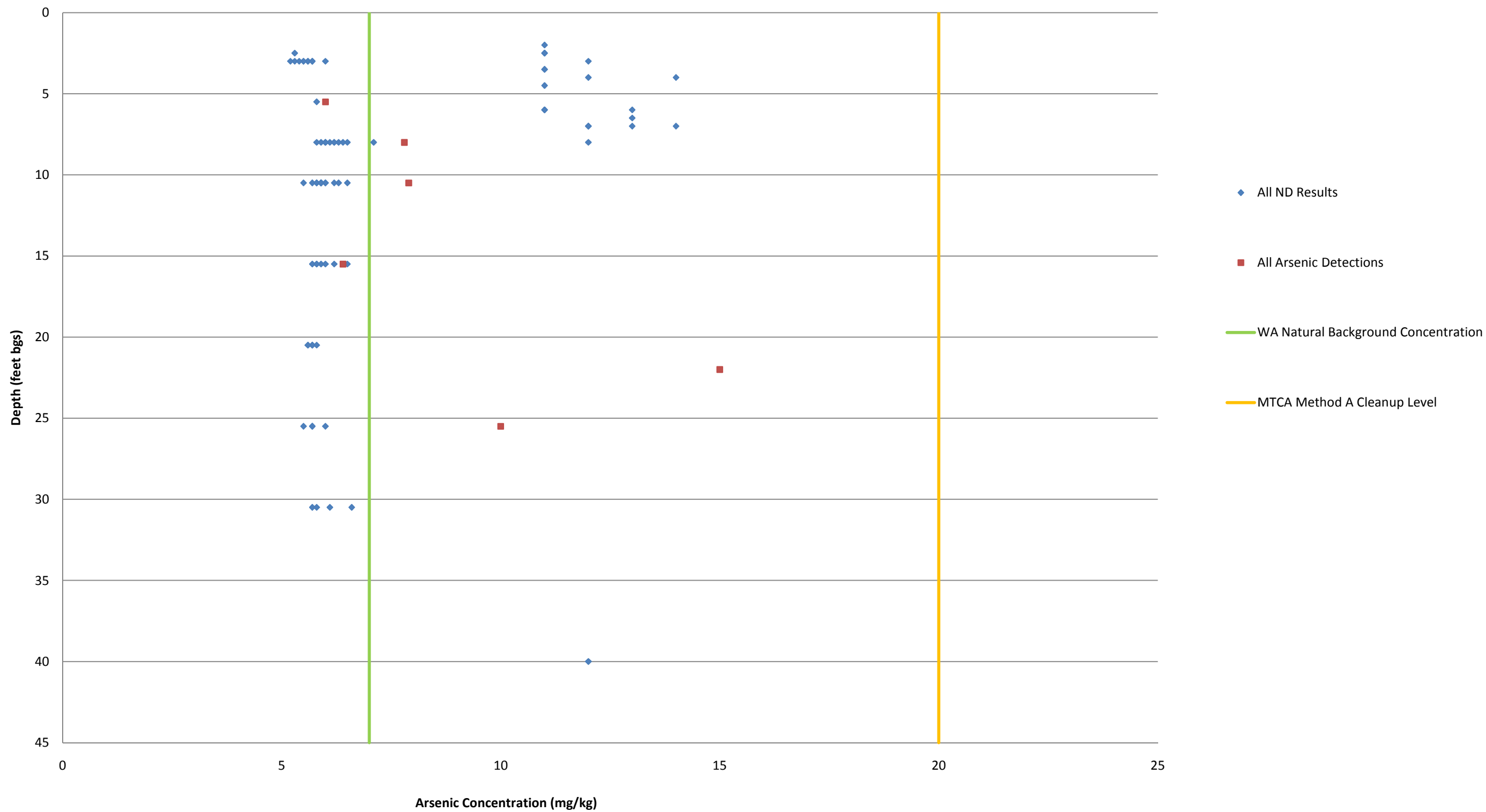
Former Olympia MGP Site

Puget Sound Energy

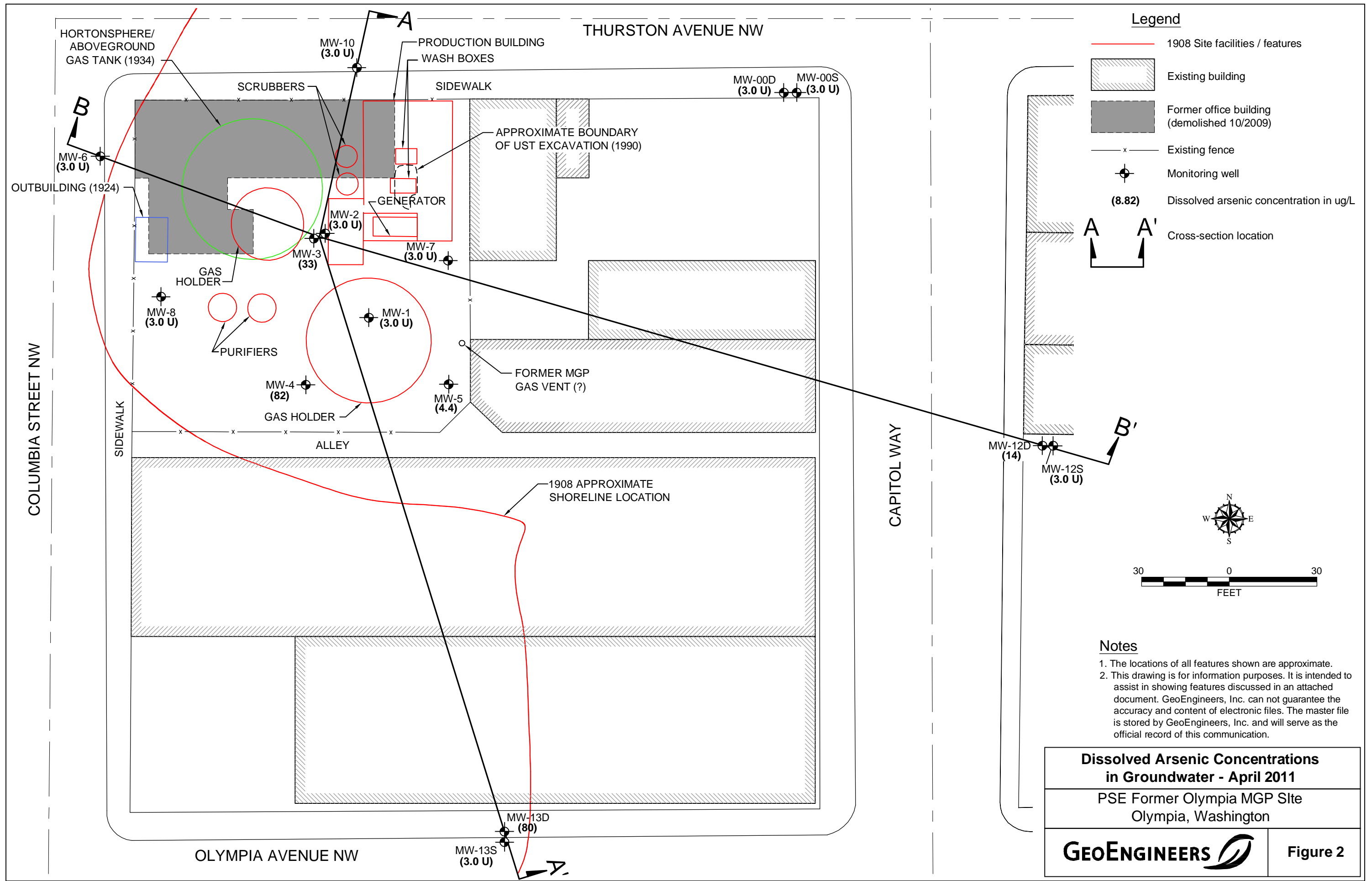
Statistic	Units	Values		
		Samples with the Following Detection Limits		
		All detection limits	5.0 to 7.1 mg/kg	11 to 14 mg/kg
Total number of soil analyses	#	83	62	21
Total number of detected samples	#	6	5	1
Detection frequency	%	7.2%	8.1%	4.8%
Min. depth of soil analyzed	ft bgs	2.0	2.5	2.0
Max. depth of soil analyzed	ft bgs	40.0	30.5	40.0
Min. concentration of detected arsenic	mg/kg	6.0	6.0	15
Max. concentration of detected arsenic	mg/kg	15	10	15
Average concentration of detected arsenic	mg/kg	8.9	7.6	15

Samples with Arsenic Detections				
Location	Sample ID	Date	Depth (ft bgs)	Arsenic Concentration (mg/kg)
TP-5/SB-5	SB5-9-220	8/21/2008	22.0	15
MW-8	MW-8-15.5	11/2/2009	15.5	6.4
SB-10	SB-10-5.5	11/3/2009	5.5	6.0
SB-11	SB-11-10.5	11/3/2009	10.5	7.9
SB-14	SB-14-8.0-D*	11/3/2009	8.0	7.8
SB-21	SB-21-25.5	12/1/2010	25.5	10

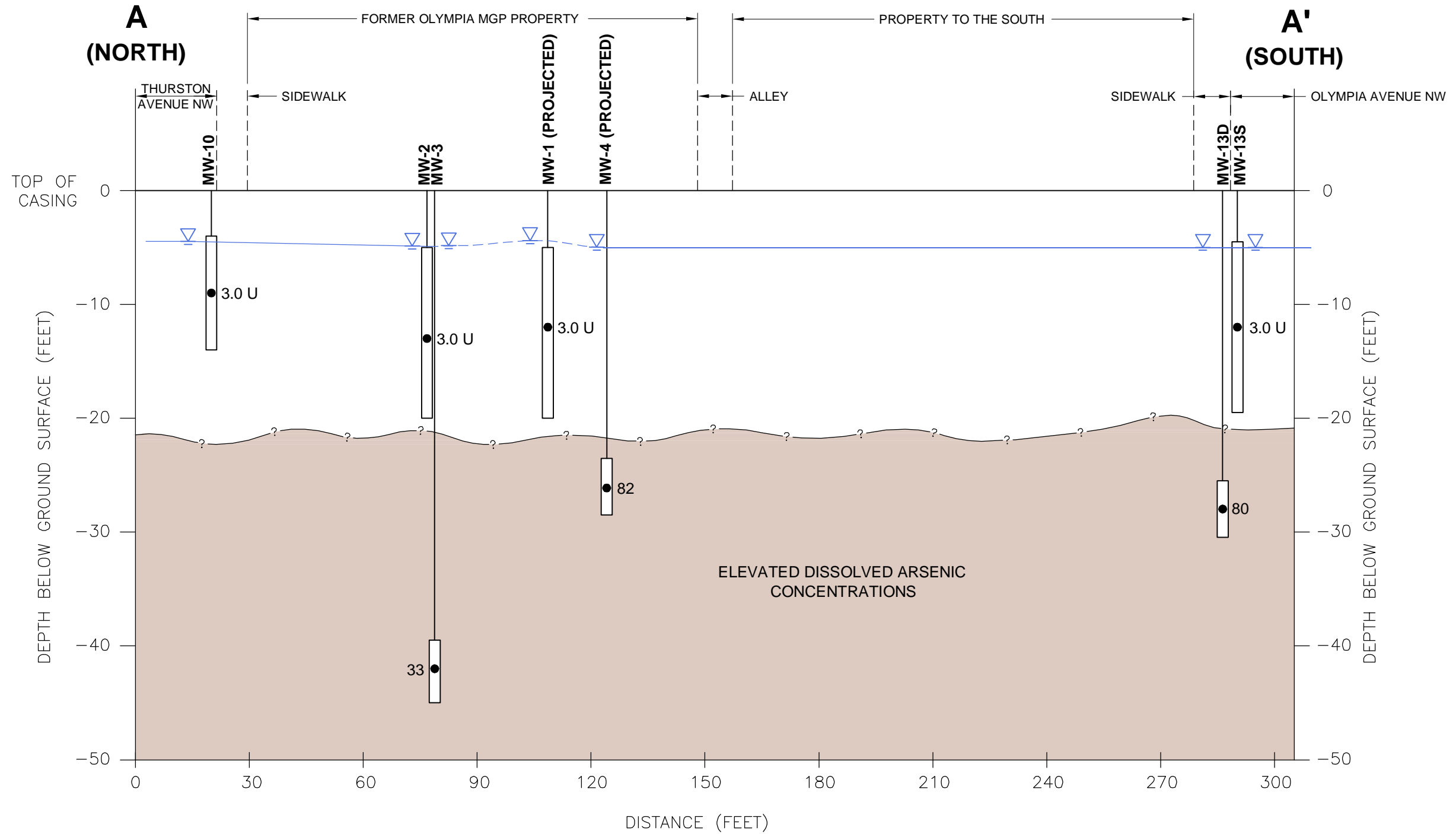
Arsenic Concentrations in Soil vs. Depth



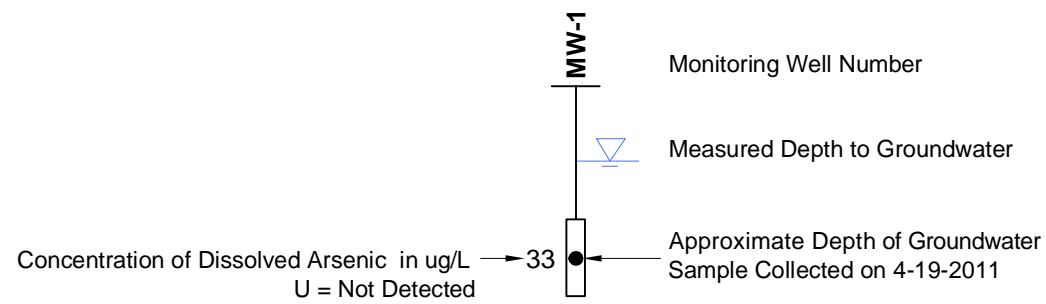
P:\0186774\001\TASK 0300 - OFF-PROPERTY INVESTIGATION\CAD\018677400_TASK 0300 Fig 2 DISSOLVED ARSENIC-APRIL 2011.DWG\TAB:F2 MODIFIED BY TRICHAUD ON JUN 27, 2011 - 9:30



P:\10186774\100\TASK 0300 - OFF-PROPERTY INVESTIGATION\CAD\CROSS-SECTIONS\0186774_00_F3_F4.dwg;TAB:Fig 4, MODIFIED BY TMICHAUD ON JUN 27, 2011 - 10:00



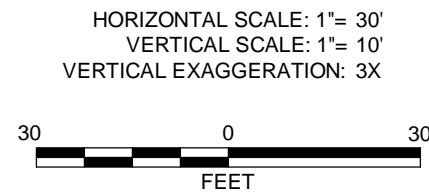
Legend



Notes

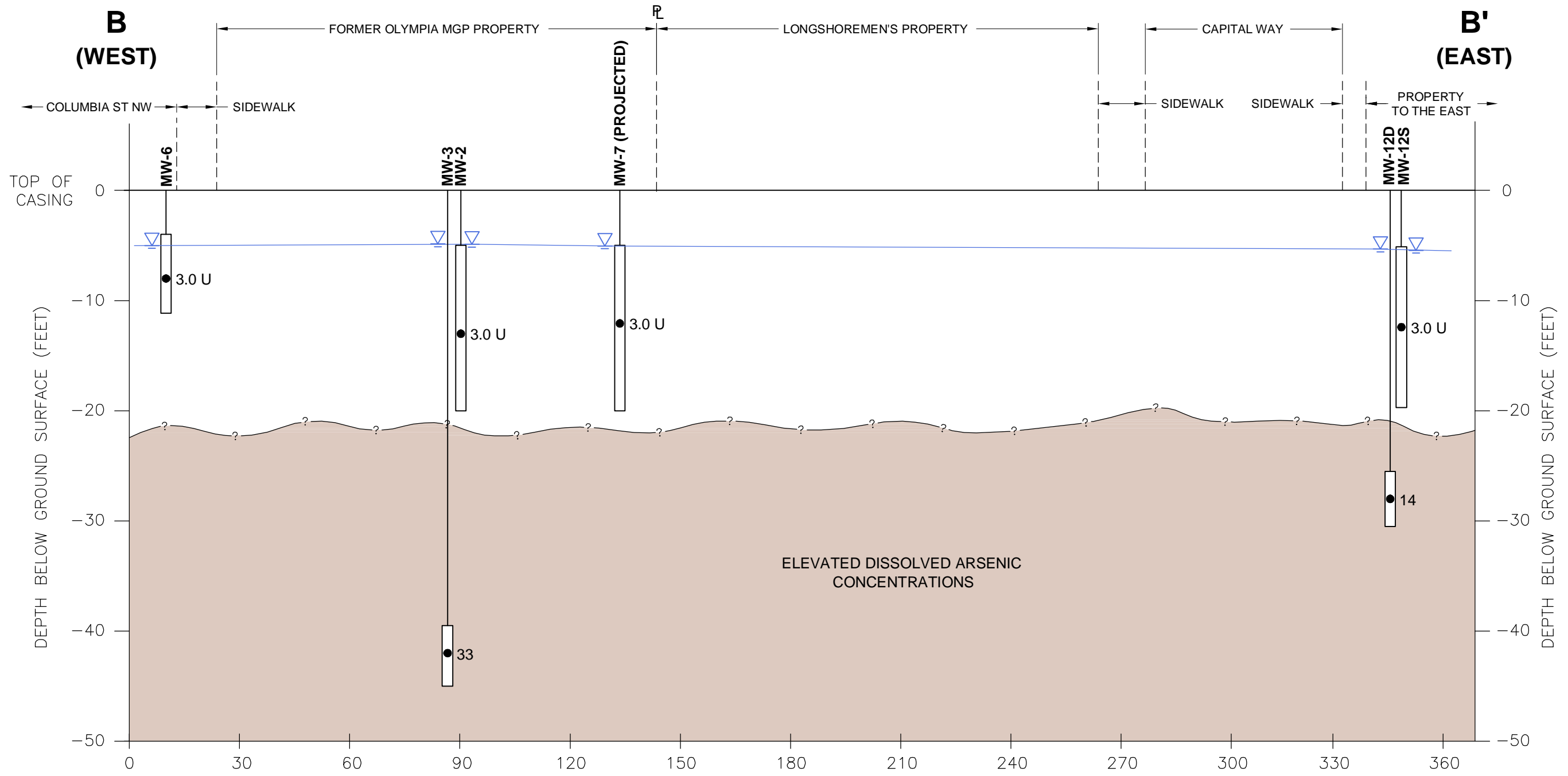
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Sketch by GeoEngineers staff June, 2011.



Cross-Section A-A'	
PSE Former Olympia MGP Site Olympia, Washington	
GEOENGINEERS	Figure

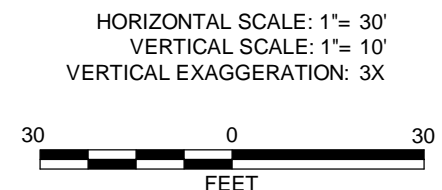
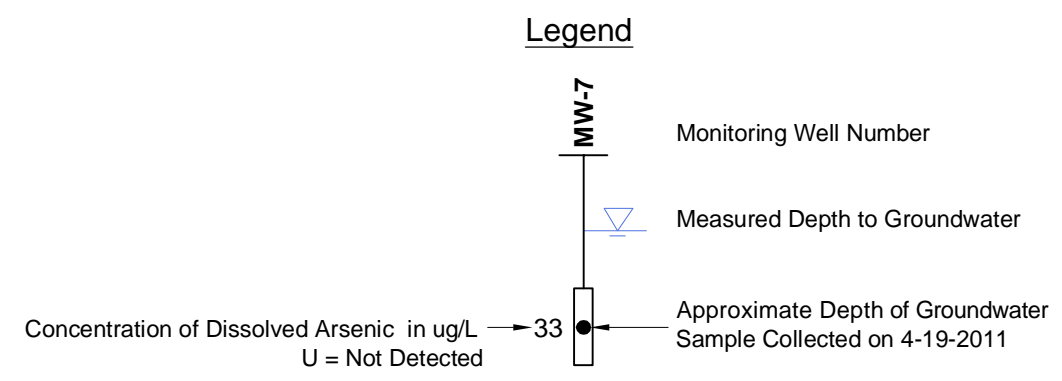
P:\010186774\001\TASK 0300 - OFF-PROPERTY INVESTIGATION\CROSS-SECTIONS\018677400_F3_F4.DWG\TAB:Fig 3 MODIFIED BY TMICHAUD ON JUN 27, 2011 - 11:10



Notes

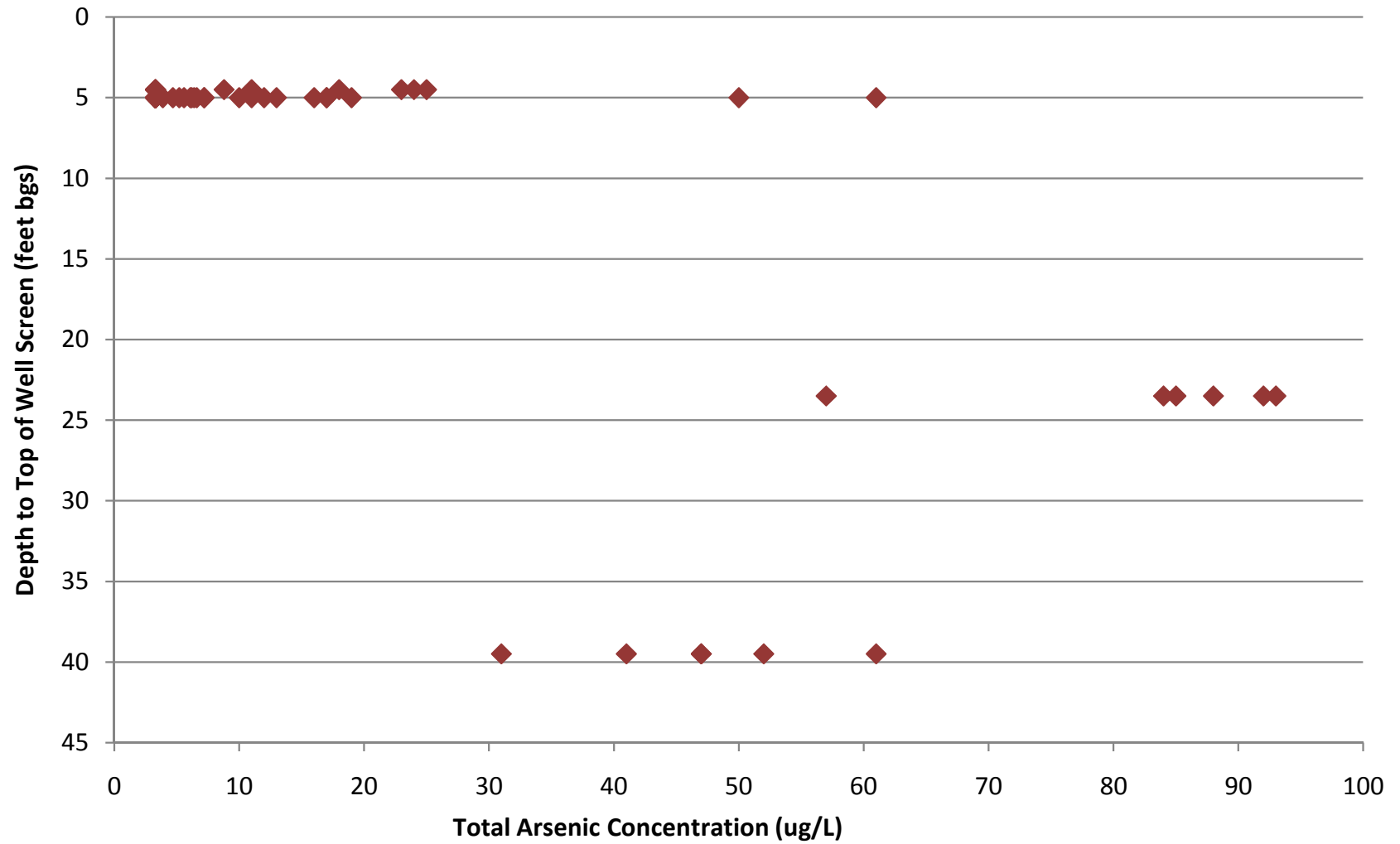
1. The locations of all features shown are approximate.
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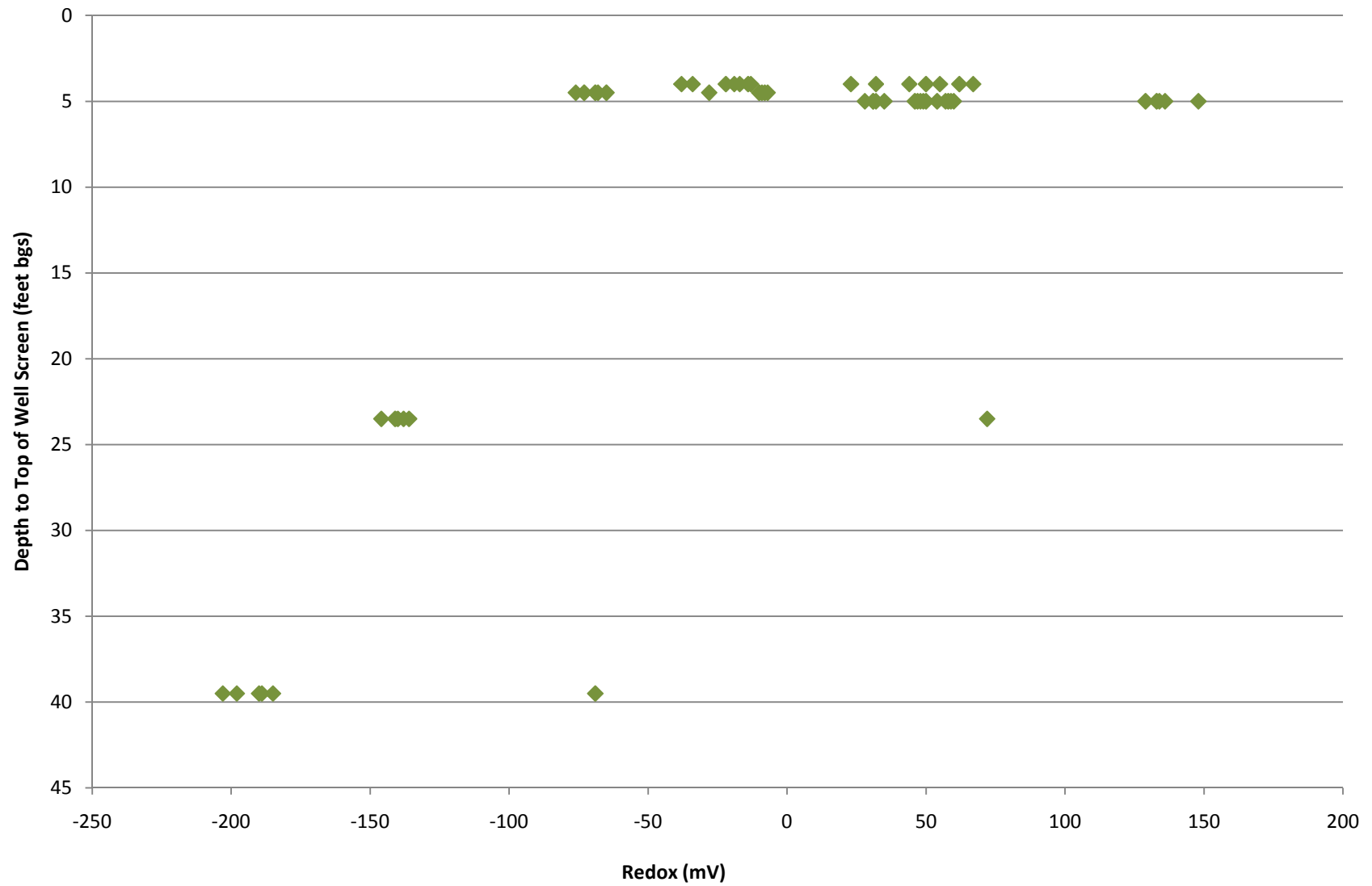
Cross-Section B-B'	
PSE Former Olympia MGP Site Olympia, Washington	
GEOENGINEERS	Figure

Groundwater Sample Depth vs. Total Arsenic Concentration
(samples < 15 NTU)



Groundwater Sample Depth vs. Redox

(samples < 15 NTU)



Total Arsenic vs. Redox

(samples < 15 NTU)

