

Memorandum

To: Matt Morris, Washington State Department of Ecology

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From: Kristin Anderson and Tom Colligan, Floyd|Snider

Date: June 11, 2019

Project No: 3102-West Coast Door

Re: RI Data Gaps Work Plan Addendum for Transducer Deployment

This memorandum has been prepared as an addendum to the Remedial Investigation (RI) Data Gaps Work Plan (Work Plan) for the West Coast Door Site (Site) located at 3120 South Pine Street and 3102 South Pine Street in Tacoma, Washington. The Work Plan was submitted to the Washington State Department of Ecology (Ecology) in July 2018 (Floyd|Snider 2018) and approved in August 2018.

PROJECT BACKGROUND

The Site is the former location of a wood pipe manufacturing facility that used pressurized retorts to impregnate wooden pipe with creosote. Previous investigations at the Site have identified soil and groundwater contamination resulting from the former creosoting operation, including a groundwater naphthalene plume that originates in the former retort area and extends off property primarily to the north and west, consistent with overall groundwater flow to the northwest, as determined during previous monitoring events.

The objective for the RI is to perform a site-wide evaluation of soil and groundwater contamination. As part of this evaluation, in discussion with Ecology, several new monitoring wells were proposed at adjacent properties in order to fully delineate naphthalene contamination in groundwater. One of the new wells was proposed to be installed at the former Parker Paint property (currently Fibro Corporation [FibroCorp]), which is situated to the south of the Site across a set of rail tracks owned by Sound Transit. The purpose of this well was to evaluate any impacts to the south of the main plume caused by seasonal pumping from wells in Tacoma Water's South Tacoma Wellfield. Access for well placement on Sound Transit right of way was also attempted, but was not possible due to the proximity of the rail tracks to potential well locations. The current property owner at the intended well location to the south of the tracks, FibroCorp, has been unresponsive to requests for access to install this proposed well.

This Work Plan Addendum presents a plan, in lieu of the well on FibroCorp property, for collection of continuous groundwater elevation data from existing Site wells. These data would allow determination of whether pumping in the South Tacoma Well Field impacts groundwater flow direction in the area of the naphthalene plume.

SOUTH TACOMA WELLFIELD OVERVIEW

The South Tacoma Wellfield consists of 14 municipal water supply wells located to the south of the West Coast Door Site, as shown on Figure 1. According to Tacoma Water, this wellfield is primarily utilized during the summer months when high water demand outstrips the capacity of the primary Green River reservoir (Tacoma Water 2018). The Site lies within the area from which groundwater can travel to the supply wells over a period of 1 year.

The nearest supply wells to the Site are Well 2B, Well 2C, Well 9A, and Well 12A. Pumping records for these wells in 2018, which Tacoma Water has provided to Ecology, as well as a summary from 2002 to 2018, are presented in Attachment 1. During the summer of 2018, only Well 12A was pumped to supply municipal water. Well 12A is also the closest well to the Site, located approximately 1,300 feet to the south-southeast, as shown on Figure 2.

Well 12A is screened from an elevation of approximately 180 feet to 155 feet above mean sea level (MSL; USEPA 2001). Shallow wells at the West Coast Door Site are screened from approximately 210 to 200 feet MSL. One deeper water-bearing zone well at the Site is screened from approximately 185 to 175 feet MSL below a low-permeability silt layer

If pumping effects from Well 12A are present at the Site, it is expected that they will manifest slowly after sustained pumping from the supply well in the unconfined “water table” aquifer at the Site as the cone of depression expands over time.

PROPOSED GROUNDWATER ELEVATION DATA COLLECTION

Groundwater elevation data will be collected monthly during spring and summer 2019 at all Site wells, and continuously at a subset of Site wells using pressure transducers.

Transducers will be installed in five targeted wells as follows:

- MW-03: to assess the northern extent of influence on the site
- MW-09: to assess pumping effects in the deeper water-bearing zone
- MW-06, MW-10, and MW-12: to assess local effects of pumping on the northwesterly groundwater flow direction at presumed upgradient and downgradient wells

Proposed transducer locations are shown on Figure 3. Transducers will be deployed immediately upon approval of this Work Plan Addendum, before the anticipated start of pumping at Well 12A in mid-June 2019, in order to collect pre-pumping baseline data. At the time of transducer deployment, water levels will also be collected manually at all Site wells.

The transducers will be installed concurrently with a barometer that will be placed at a secure location at the Site. The transducers and barometer will be set to log pressure measurements concurrently at 15-minute intervals.

The transducers will remain in the targeted wells through October 2019—approximately two months after Tacoma Water typically stops pumping the supply wells—to collect post-pumping baseline data. During the transducer deployment period, manual water levels will also be collected at all Site wells during the first quarterly groundwater monitoring event (anticipated July 2019), during a standalone water level collection event (anticipated August 2019), and concurrently with transducer removal in September.

The transducer data will be downloaded on a monthly basis and analyzed for water level changes indicative of pumping at well 12A. The pressure-corrected groundwater elevation data from the transducers and site-wide groundwater elevations generated from the water level measurements, and a brief email summary of any possible observed pumping effects, will be transmitted monthly to Ecology.

After completion of the transducer deployment, pumping records for the South Tacoma Wellfield will be requested from Tacoma Water. The pumping data will be compared against the transducer and manually collected groundwater elevation data to determine whether any of the identified water level changes are correlated with the occurrence of supply well pumping. These data will be presented to Ecology to support the evaluation of the necessity of a monitoring well at the FibroCorp property.

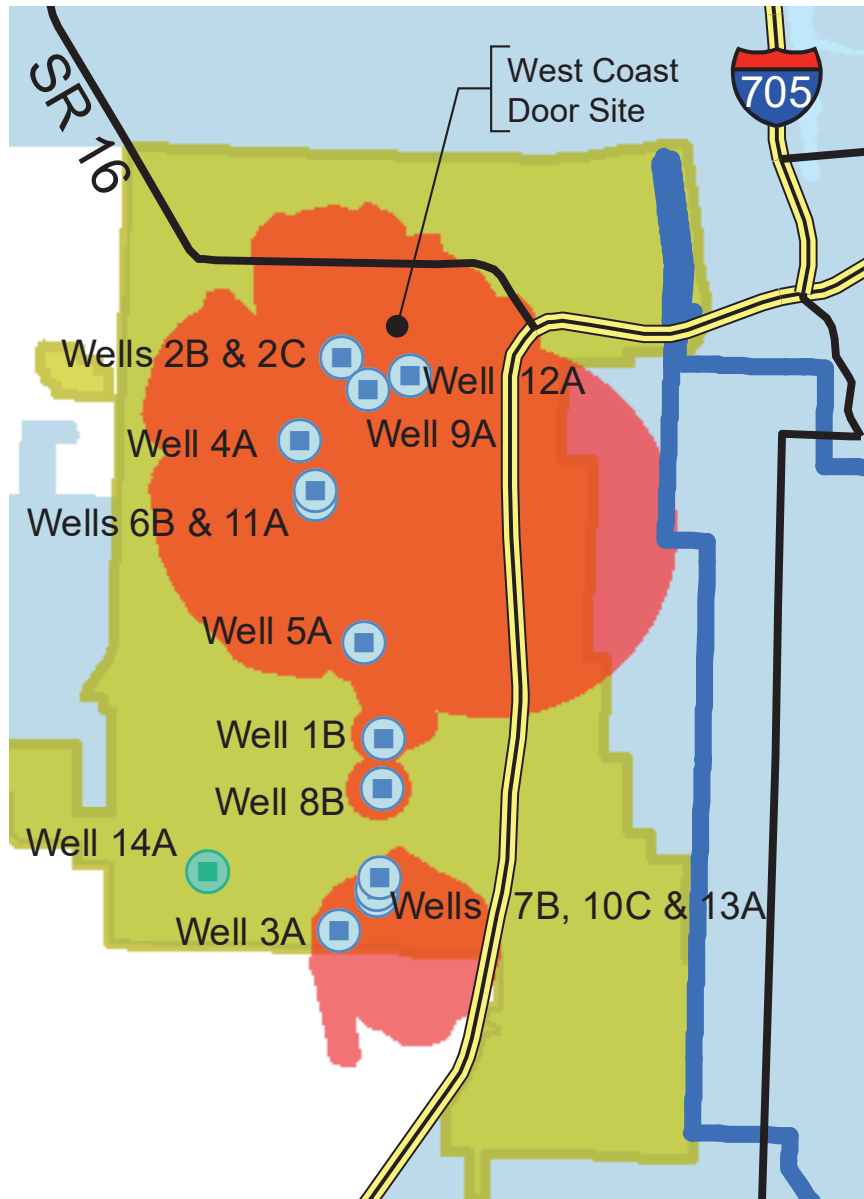
REFERENCES

- Floyd|Snider. 2018. *West Coast Door Site Remedial Investigation Data Gaps Work Plan*. Prepared for 3102 TIC. July.
- Tacoma Water. 2018. *2018 Water System Plan*. Prepared by HDR, Inc., and Tacoma Water. Updated February 2019.
- U.S. Environmental Protection Agency (USEPA). 2001. *Remediation System Evaluation: South Tacoma Channel/Well 12A Superfund Site, Tacoma, Washington*. 10 December.

LIST OF ATTACHMENTS

- | | |
|--------------|-------------------------------------|
| Figure 1 | South Tacoma Wellfield Map |
| Figure 2 | Property Map |
| Figure 3 | Transducer Deployment Plan |
| Attachment 1 | South Tacoma Wellfield Pumping Data |

Figures

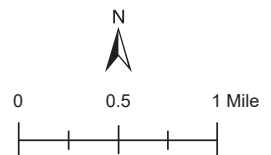


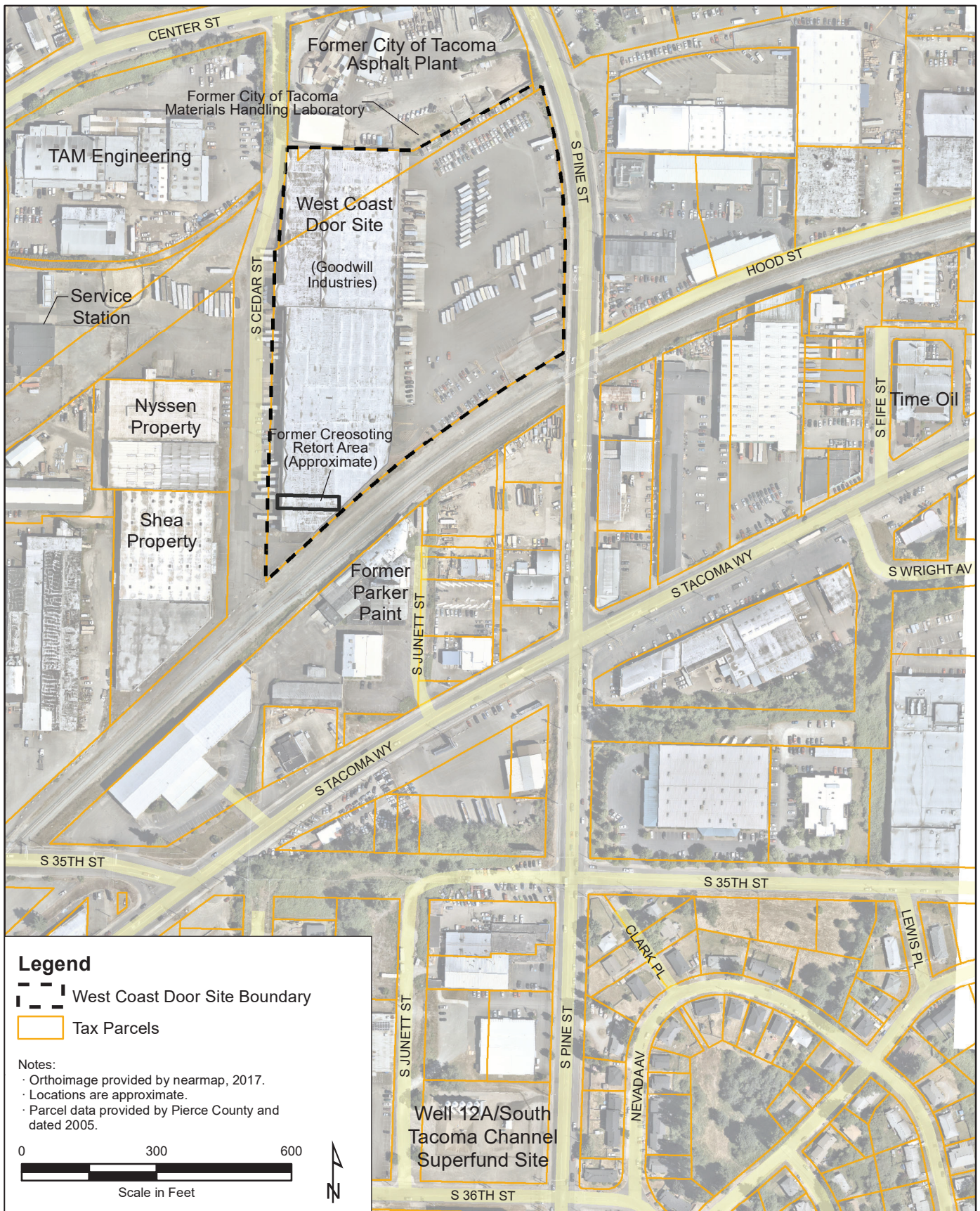
Legend

- Current Well
- Potential Future Well
- 1 Year Time of Travel
- South Tacoma Groundwater Protection District

Note:

• Image source: Tacoma Water 2018 Water System Plan Update Figure 2-4





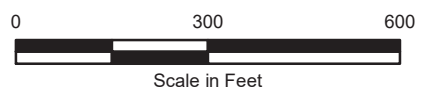
Legend

--- West Coast Door Site Boundary

□ Tax Parcels

Notes:

- Orthoimage provided by nearmap, 2017.
- Locations are approximate.
- Parcel data provided by Pierce County and dated 2005.







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**RI Data Gaps
Work Plan Addendum
West Coast Door Site
Tacoma, Washington**

**Figure 2
Property Map**

Legend

-  Proposed Shallow Groundwater Monitoring Well
-  Existing Shallow Groundwater Monitoring Well
-  Existing Deep Groundwater Monitoring Well
-  Proposed Transducer Location

Estimated Naphthalene Conc. in µg/L

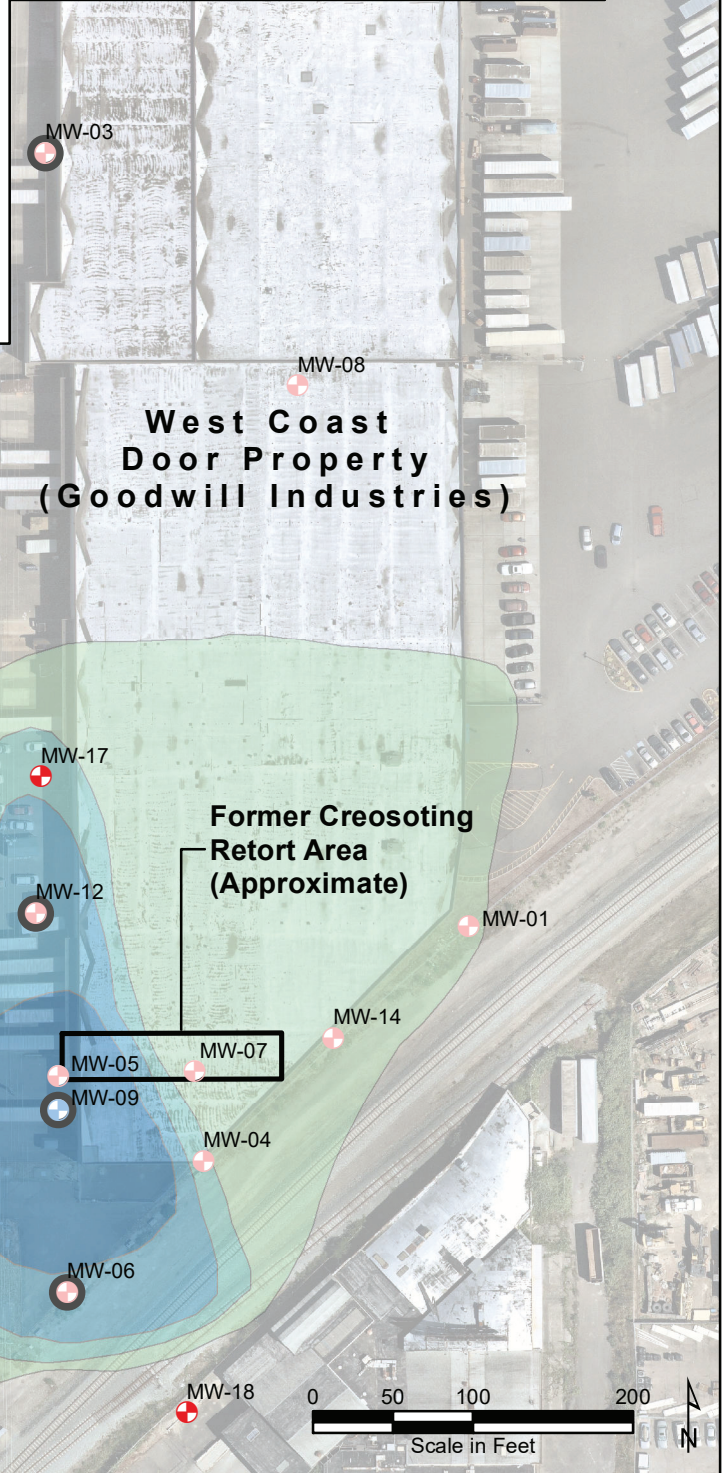
-  0–160 (MTCA Method A Cleanup Level)¹
-  160–1,000
-  1,000–10,000
-  > 10,000

Notes:

- 1. MTCA Method A cleanup level for naphthalene is 160 µg/L.
- Naphthalene concentrations shown are the maximum concentrations for groundwater samples collected from the 10-foot-thick saturated zone located above the confining silt layer that underlies the Site (approximately 70-80 feet bgs).
- Locations are approximate.
- Orthoimage provided by Nearmap, 2017.

Abbreviations:

- bgs = Below ground surface
- µg/L = Micrograms per liter
- MTCA = Model Toxics Control Act
- NGVD 29 = National Geodetic Vertical Datum of 1929



Attachment 1
South Tacoma Wellfield Pumping Data

**TACOMA WATER
ANNUAL WELL USE REPORT - MILLION GALLONS**

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		TOTAL	TOTAL %
1B	351.24	457.05	301.60	223.83	478.01	181.62	105.63	158.26	129.81	247.14	45.26	148.17	94.93	400.46	136.54	212.30	295.70		3967.56	14%
2B	—	3.96	1.84	—	1.51	—	1.31	4.42	0.21	26.34	—	—	—	6.37	—	—	—		45.96	0%
3A	621.92	612.09	339.84	248.82	464.54	182.95	53.55	248.22	1.90	307.54	17.07	215.11	453.69	566.11	11.76	480.17	264.75		5090.03	18%
4A	—	24.52	6.50	—	—	—	—	—	—	3.72	—	0.79	5.08	19.77	—	—	—		60.38	0%
5A	957.24	964.38	504.20	504.26	765.10	378.37	84.34	330.56	—	357.79	—	24.19	540.38	660.23	15.59	130.12	431.26		6648.01	24%
6A	233.38	233.59	56.90	78.33	85.23	70.45	21.26	67.90	14.73	53.34	—	37.66	71.09	269.20	—	—	79.41		1372.47	5%
7B	15.85	89.46	51.48	60.41	39.64	3.91	—	9.05	19.83	11.69	—	0.27	34.27	111.79	0.11	—	—		447.76	2%
8B	96.86	406.43	164.42	149.36	154.10	9.06	—	64.00	172.82	61.49	5.39	176.53	457.39	563.45	189.47	0.51	180.19		2851.46	10%
9A	0.07	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		0.07	0%
10C	35.74	53.58	33.43	27.09	41.30	22.73	—	14.12	10.18	2.43	—	1.18	1.70	24.27	0.00	0.01	45.79		313.55	1%
11A	53.00	401.45	441.48	187.47	477.80	124.81	197.46	216.91	1.22	—	—	153.29	181.27	816.82	—	—	—		3252.98	12%
12A	—	371.23	218.25	—	143.80	33.64	3.27	93.24	1.60	19.41	—	9.70	2.51	680.57	0.13	—	243.46		1820.81	6%
13A	13.39	125.98	42.87	22.60	26.81	23.11	—	17.90	22.85	12.77	0.10	15.82	71.30	118.05	0.04	—	0.04		513.62	2%
TF	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		—	0%
UP1	—	113.04	62.04	4.46	—	5.16	—	—	—	—	—	—	—	82.08	—	—	—		266.78	1%
UP10	—	7.30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		7.30	0%
PA1	—	4.83	32.86	—	—	0.10	—	—	—	—	—	—	—	28.60	—	—	—		66.39	0%
GPL1	82.95	115.60	62.93	—	—	0.08	—	—	—	—	—	3.56	—	—	—	—	—		265.12	1%
GPL2	21.75	38.37	—	—	—	—	—	—	—	—	—	25.84	—	240.57	—	—	—		326.53	1%
SE2	4.60	12.52	26.75	4.64	7.22	16.59	—	—	—	—	—	—	—	56.26	—	—	—		128.58	0%
SE6	3.57	11.89	25.66	4.39	6.96	16.13	—	—	—	—	—	—	—	52.15	—	—	—		120.75	0%
SE8	—	8.70	19.59	1.36	5.83	14.50	—	—	3.59	—	—	—	—	—	—	—	—		53.57	0%
SE11	8.15	43.02	32.36	8.14	21.27	30.41	—	—	0.16	—	—	0.16	—	108.97	—	5.31	—		257.95	1%
SE11A	5.15	24.30	18.33	4.59	7.31	18.77	—	—	5.59	—	—	—	—	40.84	—	—	—		124.88	0%
TOTAL	2,505	4,129	2,432	1,530	2,726	1,132	467	1,225	384	1,104	70	812	1,918	4,950	354	828	1,541		28,107	100%
AVG WELL MGD	6.9	11.3	6.6	4.2	7.5	3.1	1.3	3.4	1.1	3.0	0.2	2.2	5.3	13.6	1.0	2.3	4.2		4.8	0%

