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**From:** Jen Mott <jmott@anchorqea.com>

**Sent:** Wednesday, May 20, 2020 8:02 AM

**To:** 'BAYUK Dana' <Dana.BAYUK@state.or.us>

**Cc:** 'NELSON Heidi' <Heidi.NELSON@state.or.us>; Halah Voges <hvoges@anchorqea.com>; Rob Ede <robe@hahnenv.com>; John Renda <jrenda@anchorqea.com>; 'SEIDEL Paul' <Paul.SEIDEL@state.or.us>; Patty Dost <pdost@pearllegalgroup.com>; Ryan Barth <rbarth@anchorqea.com>; Bob Wyatt <rjw@nwnatural.com>; Sarah Riddle <sriddle@pearllegalgroup.com>

**Subject:** RE: Gasco: Weekly Water Levels; Koppers and LNG Basin Area

Dana,

The following email is provided on behalf of John Renda.

Dana –

The attached table includes the weekly measurements from the fifteen locations you requested. Twelve of the locations have transducers installed, recording elevations at 15-minute intervals. For this request, a single weekly water level measurement was used for wells with transducers by selecting the closest 15-minute interval to the manual measurements.

This spreadsheet includes monthly water level elevations (groundwater in the wells and piezometer and surface water in the Koppers Basin) for the 15 locations from July 2018 through April 2019 and weekly measurements beginning in May 2019, through April 2020.

Water levels in the Koppers basin reached a maximum water depth of 3.7 feet of standing water on February 18, 2020 and slowly decreased during March and April to a depth of 3.0 feet on April 29, 2020.

Let us know if you have any questions.

Jen Mott  
Project Coordinator  
Anchor QEA, LLC  
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**From:** BAYUK Dana <[Dana.BAYUK@state.or.us](mailto:Dana.BAYUK@state.or.us)>  
**Sent:** Wednesday, May 29, 2019 10:57 AM  
**To:** Rob Ede <[robe@hahnenv.com](mailto:robe@hahnenv.com)>  
**Cc:** NELSON Heidi <[Heidi.NELSON@state.or.us](mailto:Heidi.NELSON@state.or.us)>; Halah Voges <[hvoges@anchorqea.com](mailto:hvoges@anchorqea.com)>; Jen Mott <[jmott@anchorqea.com](mailto:jmott@anchorqea.com)>; John Renda <[jrenda@anchorqea.com](mailto:jrenda@anchorqea.com)>; SEIDEL Paul <[Paul.SEIDEL@state.or.us](mailto:Paul.SEIDEL@state.or.us)>; Patricia Dost <[pdost@pearllegalgroup.com](mailto:pdost@pearllegalgroup.com)>; Ryan Barth <[rbarth@anchorqea.com](mailto:rbarth@anchorqea.com)>; Bob Wyatt <[rjw@nwnatural.com](mailto:rjw@nwnatural.com)>; Sarah Riddle <[sriddle@pearllegalgroup.com](mailto:sriddle@pearllegalgroup.com)>  
**Subject:** RE: Summary of Agreement on Weekly Water Levels; Koppers and LNG Basin Area

Hello Rob.

DEQ reviewed your May 22, 2019 e-mail summarizing our May 14<sup>th</sup> telephone conversation regarding collecting and reporting water level measurements in the vicinity of the LNG Basin and the Koppers Tank Farm.

Based on our review, DEQ:

- Concurs with the e-mail summary of the call; and
- Approves the plan for collecting and reporting water level data subject to NW Natural conducting the work through December 2019.

Data for the May through December 2019 time period will be the basis for decisions regarding continuing data collection.

Please feel free to contact me with questions regarding this e-mail and hope your day is going well.

Dana

Mr. Dana Bayuk  
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Please visit our website at <http://www.oregon.gov/deq>

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**From:** Rob Ede <[robe@hahnenv.com](mailto:robe@hahnenv.com)>

**Sent:** Wednesday, May 22, 2019 6:40 PM

**To:** BAYUK Dana <[Dana.BAYUK@state.or.us](mailto:Dana.BAYUK@state.or.us)>

**Cc:** Bob Wyatt <[rjw@nwnatural.com](mailto:rjw@nwnatural.com)>; John Renda <[jrenda@anchoragea.com](mailto:jrenda@anchoragea.com)>; Ryan Barth <[rbarth@anchoragea.com](mailto:rbarth@anchoragea.com)>; Halah Voges <[hvoges@anchoragea.com](mailto:hvoges@anchoragea.com)>; Patty Dost <[pdost@pearllegalgroup.com](mailto:pdost@pearllegalgroup.com)>; Sarah Riddle <[sriddle@pearllegalgroup.com](mailto:sriddle@pearllegalgroup.com)>; Jen Mott <[jmott@anchoragea.com](mailto:jmott@anchoragea.com)>

**Subject:** Summary of Agreement on Weekly Water Levels; Koppers and LNG Basin Area

Hi Dana,

I'm providing this e-mail at your request to document our telephone conversation of May 14, 2019 regarding DEQ's request for weekly water level measurements at select locations surrounding the former Koppers tank basin and the nearby LNG tank basin. Our May 14 telephone conversation was an outcome from a site visit on May 6, 2019 with me, John Renda (Anchor QEA) and you to observe standing water in the former Koppers tank basin.

Based on the May 6, 2019 site visit and our follow-up call on May 14, 2019 it is understood that DEQ is requesting that NW Natural proceed with weekly water level measurements at the following 15 locations in the general vicinity of the Koppers and LNG tank basins:

1. MW-8-29
2. MW-9-29
3. MW-10-25
4. MW-11-32
5. MW-12-36
6. MW-43F
7. MW-44F
8. MW-45F
9. MW-46F
10. MW-47F
11. MW-48F
12. MW-49F
13. PZ-KB1
14. MW-KW-2
15. Koppers tank basin surface water measurement point

With the exception of the locations 13 through 15, all of the requested water level monitoring locations are already collecting the requested data at 15-minute intervals with the use of dedicated transducers. The requested water level data from the locations 13 through 15 (PZ-KB1, MW-KW-2, and Koppers tank basin surface water measuring point) will be collected manually on a weekly schedule – which began the week of May 13, 2019.

As further requested, NW Natural will provide a spreadsheet summarizing the weekly water level measurements to DEQ by e-mail on a monthly basis. Single weekly transducer measurements to coincide with the manual measurements will be selected for inclusion in this spreadsheet. The spreadsheet will include a summary of all weekly measurements and will be provided to DEQ by the 20th of the following month.

This work was requested so that water levels in the former Koppers tank basin and surrounding locations can be monitored on a more frequent basis as we move into and through the dry season. As such, the weekly work activities and reporting as described here will be a short-term interim effort during this timeframe.

Please let me know if this conforms with your understanding of our May 14, 2019 call and the agreed path forward regarding this item.

Thanks,

-Rob

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This message may contain confidential and/or privileged information. If you are not the addressee or authorized to receive this for the addressee, you must not use, copy, disclose, or take any action based upon this message or any information herein. If you receive this message in error, please advise the sender immediately by reply e-mail and delete this message. Thank you.

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**Table**  
**Koppers Basin Area Water Elevation Measurements**

Location ID		SW-KB <sup>1</sup>	PZ-KB1	MW-KW-2	MW-8-29	MW-9-29	MW-10-25	MW-11-32	MW-12-36	MW-43F	MW-44F	MW-45F	MW-46F	MW-47F	MW-48F	MW-49F
Date	Time	Elevation (feet COP)														
7/13/2018	11:08 AM	< 28.28	27.49	NM	18.76	26.22	21.81	24.15	24.69	25.10	27.62	27.03	26.52	17.77	18.54	17.22
8/2/2018	1:25 PM	< 28.28	26.97	NM	18.48	25.44	21.73	23.76	23.71	25.34	27.34	26.67	26.12	17.62	18.45	16.82
9/6/2018	9:27 AM	< 28.28	26.09	NM	18.02	24.39	21.25	22.87	22.33	25.02	26.90	26.14	25.80	16.81	17.65	16.15
10/3/2018	10:25 AM	< 28.28	25.46	NM	17.69	23.95	20.63	22.19	21.61	24.73	26.84	25.90	25.65	16.12	16.96	15.73
11/7/2018	12:25 PM	28.57	26.79	NM	17.53	25.42	21.96	22.90	22.66	24.93	28.33	26.89	26.60	16.82	17.66	15.86
12/6/2018	9:21 AM	28.79	27.63	NM	17.68	26.72	22.84	23.53	23.55	25.13	28.82	27.20	27.11	17.58	18.31	15.84
1/3/2019	10:55 AM	29.62	28.86	NM	18.61	29.15	24.47	25.24	25.23	27.07	29.61	27.67	28.38	19.14	20.03	16.76
2/7/2019	11:44 AM	29.77	28.57	NM	19.89	28.64	25.30	26.50	25.33	26.93	29.56	28.43	28.44	20.06	21.45	17.59
3/6/2019	10:19 AM	30.65	30.39	NM	22.12	30.00	27.04	28.40	26.60	27.06	30.38	29.71	29.75	21.77	22.99	18.57
4/3/2019	9:45 AM	30.64	29.97	NM	22.73	28.86	26.68	28.00	26.08	26.85	29.81	29.58	29.60	21.83	23.43	18.81
5/7/2019	10:50 AM	30.80	29.58	NM	23.38	29.01	27.00	28.27	26.71	26.82	30.38	29.79	29.79	22.29	24.03	19.08
5/14/2019	1:32 PM	30.65	30.00	30.77	23.28	28.57	26.87	28.09	26.48	26.80	30.25	29.70	29.67	22.20	23.89	19.00
5/21/2019	9:32 AM	30.66	30.10	30.91	23.40	28.82	26.91	28.08	27.05	26.80	30.27	29.72	29.72	22.33	23.89	19.05
5/28/2019	9:25 AM	30.58	29.74	30.54	23.00	28.34	26.66	27.84	26.27	26.70	30.43	29.55	29.56	22.01	23.61	18.90
6/5/2019	11:05 AM	30.36	29.69	30.21	23.01	28.06	26.59	27.74	26.39	26.69	30.06	29.37	29.43	21.99	23.51	18.80
6/11/2019	1:35 PM	30.18	29.49	29.98	22.91	27.72	26.52	27.66	25.88	26.65	29.94	29.24	29.32	21.87	23.38	18.73
6/18/2019	10:36AM	30.03	29.15	29.58	22.56	27.30	26.23	27.39	25.36	26.51	29.79	29.11	29.17	21.55	23.11	18.61
6/24/2019	11:28AM	29.90	29.08	29.33	22.53	27.01	26.19	27.30	24.95	26.44	29.68	28.95	29.04	21.46	22.99	18.51
7/2/2019	10:00AM	29.83	28.85	29.03	22.22	26.84	25.91	27.07	24.73	26.22	29.57	28.86	28.95	21.21	22.73	18.39
7/8/2019	12:35 PM	29.73	28.77	28.82	22.11	26.60	25.81	26.96	24.47	26.20	29.48	28.60	28.83	21.10	22.61	18.28
7/16/2019	1:30 PM	29.63	28.53	28.58	21.93	26.40	25.66	26.77	24.29	26.01	29.38	28.44	28.68	20.96	22.40	18.15
7/23/2019	11:00AM	29.48	28.32	28.31	21.67	26.09	25.45	26.57	23.96	26.02	29.25	28.28	28.53	20.72	22.18	18.04
7/31/2019	10:40 AM	29.28	28.12	28.02	21.53	25.86	25.33	26.41	23.77	25.70	29.09	28.11	28.36	20.60	22.01	17.90
8/6/2019	11:55 AM	29.15	28.00	27.87	21.44	25.76	25.22	26.31	23.67	25.63	28.96	27.98	28.23	20.53	21.92	17.82
8/12/2019	11:40 AM	29.10	27.70	27.69	21.24	25.77	25.06	26.14	23.36	25.62	28.86	27.85	28.09	20.36	21.75	17.73
8/21/2019	11:42 AM	28.88	27.55	NM	21.09	25.34	24.86	25.95	23.02	25.49	28.70	27.67	27.87	20.20	21.58	17.59
8/27/2019	10:35 AM	28.78	27.45	27.19	21.07	25.19	24.86	25.85	22.84	25.45	28.60	27.54	27.73	20.15	21.50	17.49
9/3/2019	10:52 AM	28.63	27.18	26.98	20.82	25.09	24.67	25.66	22.71	25.29	28.45	27.38	27.54	19.98	21.32	17.39
9/10/2019	12:24PM	28.53	27.04	26.80	20.80	25.06	24.54	25.52	22.39	25.17	28.34	27.25	27.39	19.85	21.19	17.31
9/17/2019	12:58PM	28.70	27.17	27.10	20.87	25.51	24.60	25.49	22.54	25.66	27.90	27.43	27.64	19.85	21.14	17.28
9/25/2019	10:04 AM	28.96	27.47	28.01	20.55	26.26	24.87	25.74	23.06	26.45	28.47	27.70	28.01	19.84	21.07	17.34
9/30/2019	12:15 PM	28.98	27.58	27.97	20.60	26.20	24.77	25.69	23.18	26.07	28.14	27.63	27.88	19.80	21.07	17.26
10/8/2019	12:40 PM	28.95	27.60	27.78	20.63	25.96	24.67	25.53	22.97	26.05	28.72	27.51	27.72	19.75	21.05	17.18
10/15/2019	10:45 AM	28.88	27.40	27.60	20.48	25.88	24.49	25.37	22.90	25.35	28.61	27.38	27.57	19.61	20.92	17.10
10/22/2019	10:00 AM	29.08	27.39	28.53	20.28	26.85	24.57	25.47	23.41	25.61	29.00	27.70	28.01	19.72	20.86	17.14
10/29/2019	2:17 PM	29.01	27.55	28.35	20.28	26.53	24.59	25.50	23.41	25.24	28.86	27.55	27.80	19.62	20.90	17.08
11/5/2019	10:15 AM	28.98	27.62	28.15	20.37	26.32	24.51	25.42	23.23	25.13	28.73	27.40	27.63	19.58	20.90	17.01
11/12/2019	10:15 AM	28.95	27.50	28.02	20.33	26.38	24.39	25.30	23.22	25.48	28.66	27.28	27.45	19.55	20.85	16.96
11/19/2019	10:20 AM	29.03	27.70	28.39	20.46	26.71	24.37	25.27	23.32	25.17	28.87	27.45	27.41	19.59	20.88	16.97
11/26/2019	11:10 AM	29.03	27.83	28.48	20.57	26.87	24.62	25.44	23.57	26.20	28.85	27.35	27.44	19.84	21.04	16.93
12/3/2019	11:15 AM	28.98	27.38	28.37	20.12	26.68	24.18	25.11	23.37	25.21	28.73	27.24	27.31	19.43	20.72	16.84
12/11/2019	10:55 AM	29.08	27.65	29.03	20.22	27.34	24.37	25.22	23.73	25.77	29.07	27.47	27.59	19.84	20.82	16.94
12/17/2019	11:35 AM	29.21	28.08	29.68	20.25	28.06	24.71	25.46	24.15	26.42	29.24	27.64	28.03	19.91	21.00	17.07
12/23/2019	11:10 AM	29.63	28.60	30.43	20.37	30.06	25.37	25.96	25.31	26.98	29.99	28.22	28.99	20.70	21.38	17.38
1/2/2020	10:20 AM	29.76	28.83	31.17	20.63	29.30	25.64	26.39	24.98	27.33	29.77	28.37	28.87	20.50	21.63	17.51
1/8/2020	2:15 PM	29.98	29.38	29.30	21.04	30.43	26.23	26.89	25.83	28.27	30.24	28.75	29.34	21.20	22.10	17.74
1/15/2020	10:30 AM	30.36	30.01	33.03	21.63	31.86	27.18	27.87	27.10	29.12	30.61	29.42	29.88	21.94	22.92	18.08
1/21/2020	10:00AM	30.63	30.54	33.78	22.03	31.70	27.39	28.52	27.04	29.44	29.49	29.87	30.06	21.99	23.31	18.36
1/28/2020	10:00AM	31.33	30.98	35.25	22.75	33.36	28.25	29.57	28.21	29.83	31.41	30.88	30.88	23.11	24.25	18.91
2/4/2020	11:10 AM	31.78	31.35	29.63	23.60	32.26	28.52	30.04	28.12	29.70	31.33	31.10	31.15	23.29	25.21	19.24
2/11/2020	10:25 AM	31.86	31.33	29.61	24.32	31.43	28.43	30.11	28.14	29.32	31.27	31.21	31.29	23.57	25.56	19.41
2/18/2020	2:20 PM	31.98	31.31	29.59	24.78	31.39	28.70	30.45	27.84	29.59	31.53	31.33	31.56	23.88	25.91	19.58
2/25/2020	2:15 PM	31.91	30.99	29.27	24.71	30.45	28.33	29.92	27.11	29.41	31.21	31.10	31.21	23.59	25.64	19.51
3/4/2020	11:20 AM	31.81	30.80	31.96	24.56	29.91	28.07	29.65	26.50	28.88	31.08	30.90	31.04	23.29	25.40	19.44
3/10/2020	1:20 PM	31.78	30.80	32.03	24.57	29.97	28.11	29.30	26.66	28.71	31.14	30.83	30.82	23.36	25.33	19.41
3/18/2020	3:00 PM	31.76	30.97	31.35	24.64	30.04	28.20	29.43	26.54	26.13	31.15	30.80	30.88	23.36	25.41	19.35
3/24/2020	1:00 PM	31.68	30.75	31.70	24.46	29.52	27.96	29.11	26.33	28.40	30.99	30.60	30.69	23.12	25.15	19.26
4/1/2020	1:05 PM	31.72	30.74	32.06	24.22	29.82	28.06	29.23	26.45	28.36	31.19	30.60	30.87	23.21	25.00	19.27
4/8/2020	12:09 PM	31.64	30.54	NM	24.11	29.53	28.25	29.41	26.34	28.97	31.01	30.84	30.65	22.98	24.90	19.19
4/15/2020	12:45 PM	31.28	30.45	NM	24.00	29.04	28.12	29.21	26.00	28.67	30.88	30.72	30.51	22.81	24.73	19.11
4/22/2020	12:47 PM	31.33	30.34	30.74	23.94	28.73	28.02	29.07	25.94	28.51	30.67	30.62	30.39	22.76	24.60	19.05
4/29/2020	12:34 PM	31.23	30.36	30.70	23.92	28.65	27.93	28.95	26.12	28.07	30.58	30.46	30.29	22.72	24.50	18.98

Notes:

COP: City of Portland datum

NM: not measured

Locations SW-KB, PZ-PB1, and MW-KW-2 are measured manually. All other locations recorded using pressure transducers.

<sup>1</sup>Elevation of bottom of basin at SW-KB is 28.28 feet