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April 20, 2015

1014-109

Ms. Lisa Lewis
Petro Star, Inc.
3900 C Street
Anchorage, AK 99503

Attention: **Lisa Lewis**
Director, Compliance & Safety

RE: Valdez Petroleum Terminal Ground Water Monitoring Well Identification and Inspection

Dear Ms. Lewis:

The Petro Star, Inc. Valdez Petroleum Terminal (VPT) facility was formerly owned by Chevron/Tesoro. During the previous ownership (prior to 1994) areas of petroleum contaminated soils and groundwater were noted on the property. In efforts to characterize and conduct in-situ remediation, the former facility owners installed numerous ground water monitoring wells as well as ground water treatment wells. In 1994, when facility ownership was transferred to Petro Star, Inc., remediation of all contaminated soils and groundwater had not been completed.

Travis/Peterson Environmental Consulting, Inc. (TPECI) conducted a review of historical site reports including the December 1993 *Soil Excavation Corrective Action Report* provided by the Alaska Department of Environmental Conservation (ADEC) and Petro Star. These reports indicated that as many as 29 wells were installed at the site, greater than the 21 identified by the ADEC in the February 26, 2015 letter. Minimal information regarding the condition or the location of these wells was relevant given the 20 years from the most recent information.

On April 16, 2015 TPECI personnel conducted an inspection of the VPT facility in an effort to locate, identify and determine the condition of the ground water monitoring wells on the property. TPECI utilized old site maps to identify approximate well locations and determine the historical well names/numbers. If a well was identified, TPECI assessed the condition and construction of the well. TPECI measured and recorded the depth to groundwater, the complete well depth, and then observed any indications of petroleum contamination. A photo log

documenting the investigation is enclosed with this letter.

Of the original 29 ground water wells on the property, TPECI positively identified 14 wells remaining on the property. Additionally, two dry wells not listed on any site reports were also identified. The wells identified were MW1, MW2, MW4, MW8, MW12, MW13, MW14, MW15, MW17, MW19, MW21, MW22, BH1, and BH3. Due to the large number of wells on the property and minimal information available regarding the specific well locations, TPECI cannot guarantee the names/numbers of the wells correlate directly with original names. A detailed site map showing the locations of all ground water monitoring wells located at the facility is enclosed with this letter.

Wells listed in old reports but were no longer exist at the facility were MW3, MW5, MW8, MW9, MW10, MW11, MW16, MW18, MW23, BH2, BH4, BH5, B-7, EW-1, and EW-2. TPECI was unable to locate any of these wells on the facility. It is unknown if these wells were decommissioned or removed. Due to infrastructure changes at the facility in the past two decades, TPECI was unable to locate any trace of the former wells. As well construction was consistent in the use of PVC casings; it is unlikely that magnetic detection would allow for the location of any potentially buried, but intact well casings. No reasonable means for locating any potential remaining well casings exists without significant excavation and cessation of facility operations.

The following information describes the located wells at the facility:

MW1

Construction: The well stand pipe casing was constructed of six-inch steel and sat approximately two feet above the ground surface. The well casing was two-inch PVC piping with a non-locking well cap. The well screening depth is unknown.

Location: The well was located within the tank farm containment area near the north side of the facility. The coordinates of the well are 61.1291 °N, -146.3630°W.

Condition: The PVC casing was crushed and broken. The casing was impassible for water level monitoring or other tubing at a depth of approximately 4.6 feet. TPECI was unable to access ground water. The well was not functional for future monitoring and should be decommissioned. Decommissioning of this well may not be possible while the facility is operational due to the location within the containment cell.

MW2

Construction: The well stand pipe casing was constructed of six-inch steel and sat approximately three feet above the ground surface. The well casing was four-inch PVC piping with a non-locking well cap. The well screening depth is unknown.

Location: The well was located within the tank farm containment area near the eastern dike. The coordinates of the well are 61.1287°N, -146.3651°W.

Condition: The well appears to be in good condition with no damage to the stand pipe or the well casing. Due to corrosion and weathered rubber, a new well cap should be installed.

Depth to Water: 14.28 feet.

Depth to Bottom: 21.48 feet.

Contamination: No visible sheen or hydrocarbon odor was observed.

MW4

Construction: The well appears to be an advanced well for in-situ remediation and pumping. The well itself is a flush-mounted manhole cover with an internal six-inch PVC well casing located approximately five feet below ground surface. A pumps system and all associated wiring and controls block most access down the well casing. The well screening depth is unknown.

Location: The well was located immediately south of the warehouse building on the property. The coordinates of the well are 61.1285°N, -146.3628°W.

Condition: The well appears to be in good condition. The pump system blocks access down the well casing for anything larger than a water level meter or flexible pump tubing. The well cap does not fully seal the well head. It is possible, though unlikely, that surface water could penetrate the manhole cover and drain into the well casing.

Depth to Water: 10.8 feet.

Depth to Bottom: 39.9 feet.

Contamination: A strong hydrocarbon odor was observed. A hydrocarbon sheen was visible on the water, but the sheen was light and thin. Measurable free product was not present.

MW8

Construction: The well is a flush-mounted manhole cover with a two-inch PVC well casing. The well casing had a non-locking well cap. The well screening depth is unknown.

Location: The well was located near the southeast corner of the warehouse building. The coordinates of the well are 61.1284°N, -146.3624°W.

Condition: The well appears to be in good condition with no damage to the manhole or the well casing. Due to corrosion and weathered rubber, a new well cap should be installed.

Depth to Water: 9.83 feet.

Depth to Bottom: 15.31 feet.

Contamination: No visible sheen or hydrocarbon odor was observed.

MW12

Construction: The well stand pipe casing was constructed of six-inch steel and sat approximately three feet above the ground surface. The well casing was two-inch PVC piping with a non-locking well cap. The well screening depth is unknown.

Location: The well was located within the tank farm containment area on the north side of the facility. The coordinates of the well are 61.1292°N, -146.3659°W.

Condition: The well appears to be in good condition with no damage to the stand pipe or the well casing. Due to corrosion and weathered rubber, a new well cap should be installed.

Depth to Water: 16.37 feet.

Depth to Bottom: 21.38 feet.

Contamination: No visible sheen or hydrocarbon odor was observed.

MW13

Construction: The well stand pipe casing was constructed of six-inch steel and sat approximately three feet above the ground surface. The well casing was four-inch PVC piping with a non-locking well cap. The well screening depth is unknown.

Location: The well was located within the tank farm containment area near the eastern dike. The coordinates of the well are 61.1288°N, -146.3635°W.

Condition: The well appears to be in good condition with no damage to the stand pipe or the well casing. Due to corrosion and weathered rubber, a new well cap should be installed.

Depth to Water: 15.40 feet.

Depth to Bottom: 19.20 feet.

Contamination: No visible sheen or hydrocarbon odor was observed.

MW14

Construction: The well stand pipe casing was constructed of six-inch steel and sat approximately three feet above the ground surface. The well casing was four-inch PVC piping with a non-locking well cap. The well screening depth is unknown.

Location: The well was located south of the dock pipeline near the southeast corner of the facility. The coordinates of the well are 61.1280°N, -146.3626°W.

Condition: The well appears to be in good condition with no damage to the stand pipe or the well casing. Due to corrosion and weathered rubber, a new well cap should be installed.

Depth to Water: 11.30 feet.

Depth to Bottom: 18.90 feet.

Contamination: No visible sheen or hydrocarbon odor was observed.

MW15

Construction: The well stand pipe casing was constructed of six-inch steel and sat approximately three feet above the ground surface. The well casing was four-inch PVC piping with a non-locking well cap. The well screening depth is unknown.

Location: The well was located in the northeast corner of the facility along the eastern fence line. The coordinates of the well are 61.1289°N, -146.3616°W.

Condition: The well appears to be in good condition with no damage to the stand pipe or the well casing. Due to corrosion and weathered rubber, a new well cap should be installed.

Depth to Water: 12.62 feet.

Depth to Bottom: 17.66 feet.

Contamination: No visible sheen or hydrocarbon odor was observed.

MW17

Construction: The well stand pipe casing was constructed of six-inch steel and sat approximately three feet above the ground surface. The well casing was four-inch PVC piping with a non-locking well cap. The well screening depth is unknown.

Location: The well was located on the eastern fence line of the facility. The coordinates for the well are 61.1284°N, -146.3615°W.

Condition: The well appears to be in good condition with no damage to the stand pipe or the well casing. Due to corrosion and weathered rubber, a new well cap should be installed.

Depth to Water: 11.30 feet.

Depth to Bottom: 17.60 feet.

Contamination: No visible sheen or hydrocarbon odor was observed.

MW19

Construction: The well stand pipe casing was constructed of six-inch steel and sat approximately three feet above the ground surface. The well casing was four-inch PVC piping with a non-locking well cap. The well screening depth is unknown.

Location: The well was located south of the dock pipeline, straight south of the southwestern corner of the warehouse building. The coordinates of the well are 61.1283°N, -146.3631°W.

Condition: The well appears to be in good condition with no damage to the stand pipe or the well casing. Due to corrosion and weathered rubber, a new well cap should be installed.

Depth to Water: 12.23 feet.

Depth to Bottom: 17.05 feet.

Contamination: No visible sheen or hydrocarbon odor was observed.

MW21

Construction: The well stand pipe casing was a constructed six-inch steel box and sat approximately three feet above the ground surface. The well casing was two-inch PVC piping. The well screening depth is unknown.

Location: The well was located east of the facility and outside the facility fencing. The well is located on an undeveloped lot immediately adjacent the VPT facility. TPECI did not determine property ownership. The coordinates of the well are 61.1283°N, -146.3612°W.

Condition: The stand pipe casing was heavily damaged and no longer covered the well casing. TPECI attempted to adjust the stand pipe, but it was immobile. No well cap was on the casing and the well was open to the elements. A new well cap should be installed and a new stand pipe should be constructed around the casing if this well is to be used in the future.

Depth to Water: 10.63 feet.

Depth to Bottom: 17.30 feet.

Contamination: A light hydrocarbon sheen was visible on the water and a slight odor was present in the well casing. No measureable free product was present in the well.

MW22

Construction: The well stand pipe casing was a constructed six-inch steel box and sat approximately three feet above the ground surface. The well casing was two-inch PVC piping with a non-locking well cap. The well screening depth is unknown.

Location: The well was located southeast of the facility and outside the facility fencing. The well is located on an undeveloped lot immediately adjacent the VPT facility. TPECI did not determine property ownership. The coordinates of the well are 61.1279°N, -146.3608°W

Condition: The well appears to be in good condition with no damage to the stand pipe or the well casing. Due to corrosion and weathered rubber, a new well cap should be installed.

Depth to Water: 11.25 feet.

Depth to Bottom: 18.20 feet.

Contamination: No visible sheen or hydrocarbon odor was observed.

BH1

Construction: The well appears to be an advanced well for in-situ remediation and pumping. The well itself is a flush-mounted manhole cover with an internal six-inch PVC well casing located approximately five feet bgs. A pumps system and all associated wiring and controls block most access down the well casing. The well screening depth is unknown.

Location: The well was located immediately south of the turn in the dock pipeline and was southwest of the warehouse building. The coordinates of the well are 61.1285°N, -146.3632°W.

Condition: The well cap and casing were damaged along with the pump unit blocking all access into the well. The manhole vault was partially filled with water, but below the height of the top of the well casing.

Contamination: No visible sheen or odor was observed on the water within the manhole vault.

BH3

Construction: The well appears to be an advanced well for in-situ remediation and pumping. The well itself is a flush-mounted manhole cover with an internal six-inch PVC well casing located approximately five feet bgs. A pumps system and all associated wiring and controls block most access down the well casing. The well screening depth is unknown.

Location: The well was located immediately east of the warehouse building at the facility. The coordinates of the well are 61.1289°N, -146.3629°W.

Condition: The well appears to be in good condition. The pump system blocks access down the well casing for anything larger than a water level meter or flexible pump tubing. The well cap does not fully seal the well head. It is possible, though unlikely, that surface water could penetrate the manhole cover and drain into the well casing.

Depth to Water: 11.20 feet.

Depth to Bottom: 29.33 feet.

Contamination: No visible sheen or odor was observed.

Dry Wells

Two possible dry wells were located on the property. Both wells were approximately 15 feet deep and constructed of 24" corrugated steel pipe. Both pipes were damaged with large tears and dents in the metal. Neither well had a cap or cover. Snow, ice, and standing water were located at the bottom of each dry well. The dry well coordinates are 61.1287°N, -146.3654°W and 61.1284°N, -146.3630°W.

Summary

TPECI's investigation found that the majority of the remaining wells on the property are in good condition and are suitable for future ground water monitoring efforts if required. The February 26, 2015 ADEC letter requests information regarding the well screening depths. However, it is not possible to determine the well screening depths unless the well installation logs are located or the wells are removed. Given the presence of water within the wells, it would appear that the well screens are at adequate depths to allow for future monitoring.

Wells MW21 and BH1 require minor repairs to allow for sampling to occur. Sampling efforts would be simplified if the pump systems were removed from MW4, BH1, and BH3. All wells should be given new, locking well caps to ensure no surface contamination or vandalism occurs. Well MW1 is no longer functional and will need to be decommissioned when facility conditions allow.

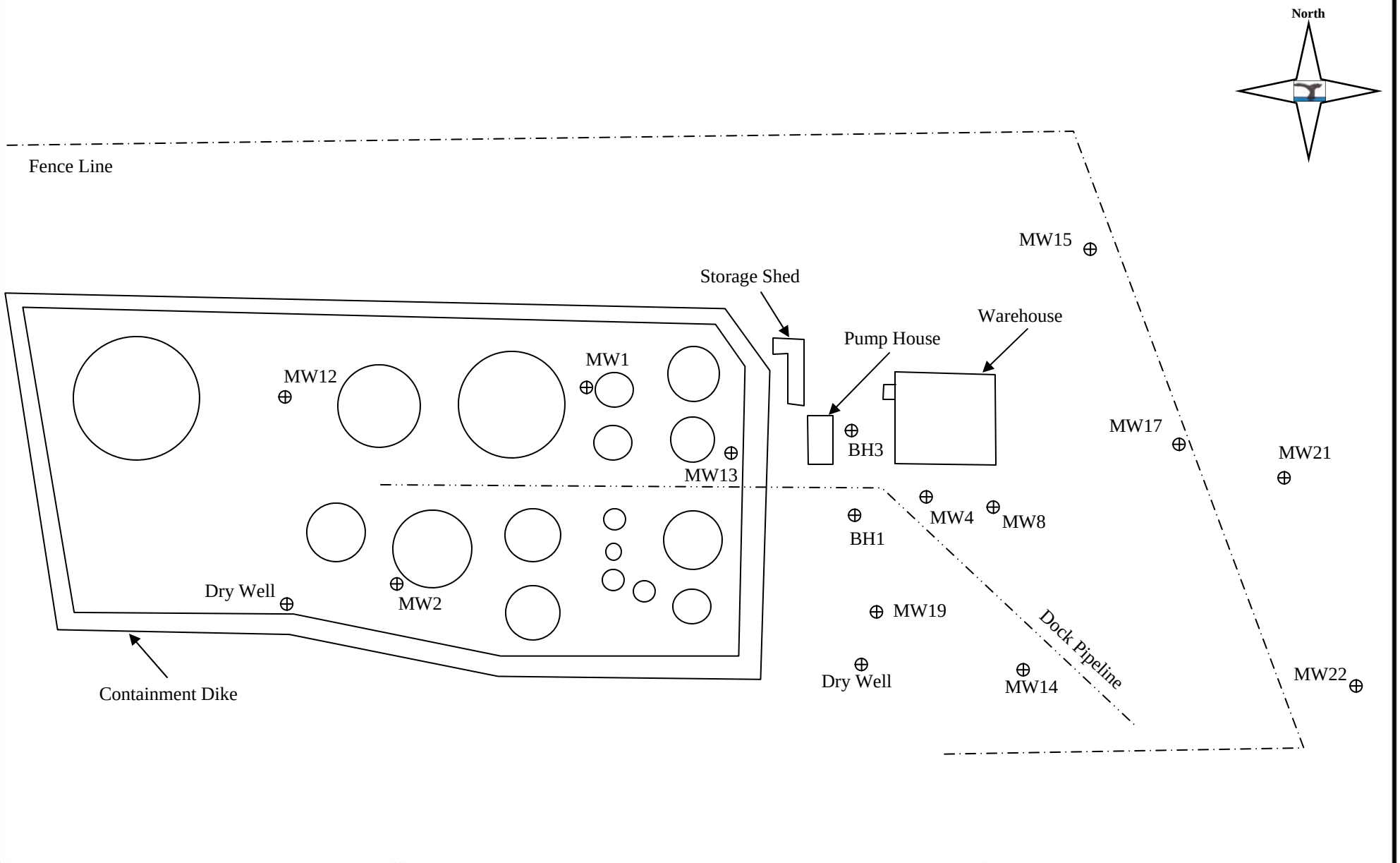
If you have any questions or comments, please feel free to call me at (907) 522-4337 or email me at EMundahl@tpeci.com.

Sincerely,

Erik D. Mundahl, P.E.
Environmental Engineer

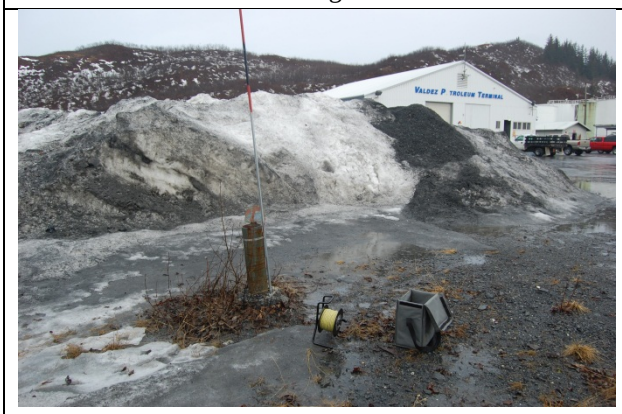
Enclosures:

1. VPT Monitoring Well Site Map
2. VPT Monitoring Well Investigation Photo Log



Travis/Peterson Environmental Consulting, Inc. 3305 Arctic Boulevard, Suite 102 Anchorage, AK 99503 907-522-4337	**Petro Star VPT Well Inspection** **Valdez, Alaska**		**Site Map** **Figure #1**
Project No: 1014-109	**File: Jupiter\backup\Erik\1014-109\Figures**	**Date: 4/20/2015**	**Scale: None**

Petro Star, Inc. VPT Monitoring Well Investigation: Photo Log – April, 2015

MW 15 looking southwest.	MW15.
	

Inside MW15.	MW17.
	

Inside MW17.	MW8.
	

MW4.	MW4.
	

MW4 highlighting the pump system.	MW13 inside containment area.
	

Inside MW13.	Inside damaged MW1.
	

MW1 between tanks within the containment area.	MW1 looking north.
	

MW12 within the containment area.	Inside MW12.
	

One dry well on the south side of the containment area.	Inside the possible dry well.
	

Inside MW2.	Second possible dry well.
	

Inside second possible dry well.	MW19 looking north towards warehouse.
	

MW14 in a snowmelt puddle.	Inside BH1. Cap damaged and immoveable.
	

BH1 looking north.	BH3 looking north.
	

Inside BH3.	MW22 looking south.
	

Inside MW22.	Damaged stand pipe on MW21.