December 10, 2017

Via Email

Mr. Christer Loftenius - Hydrogeologist
Toxics Cleanup Program
State of Washington, Department of Ecology
Eastern Regional Office
4601 North Monroe Street
Spokane, WA 99205-1296

Re: **Addendum to Supplemental Remedial Investigation Feasibility Study.**
Andeavor - Tesoro Logistics (Former Chevron) Pasco Bulk Fuel Terminal
2900 Sacajawea Park Road, Pasco, Washington 99301
Ecology Facility Site ID: 55763995; Cleanup Site ID: 4867

Dear Mr. Loftenius:

Significant site work has been conducted at the Andeavor – Tesoro Pasco Bulk Fuel Terminal (Tesoro) over this past year, including installation of surface liners near the large above-ground storage tanks (ASTs) and a new vapor burner near the fueling dock. Additionally, prior to the initial installation of PSG sensors, CEECON Testing, Inc. (CEECON) found that many of the crucial utilities inside the facility were not adequately mapped. At considerable expense, Tesoro authorized clearing the entire site for utilities. These activities necessitated changes to the tasks and schedule outlined in the Remedial Investigation Feasibility Study (RI/FS) dated March 31st, 2016.

The completion of three rounds of groundwater sampling, river bank soil sampling, and passive soil gas (PSG) sampling has provided additional information to fine-tune the locations of proposed soil borings and the removal of two wells. This ADDENDUM TO THE RI/FS explains the rationale for the optimized soil sampling locations.

In summary, CEECON recommends moving boring locations in several areas based on the following information:

1. There was little evidence of any remaining impact of a fuel release near the southern end of the dock over a decade ago. The excavation work appears to have done a great job

removing the impacted soil and groundwater in that portion of the site. PSG results indicate this area is no longer significantly impacted by petroleum hydrocarbons. The revelation that there was a rail loading rack at north east end of the dock several decades ago provided an explanation for the PSG diesel results in this area, and the northern-most River Bank soil sampling results verified lingering diesel impacts in the former loading rack area. For these reasons, CEECON proposes moving two of the borings near the river, farther north, to help delineate the diesel impact. (See attached figures.)

2. After PSG results indicated potential diesel impact near the main office, it was also revealed that there was a former diesel underground storage tank (UST) that was used to fuel Chevron service vehicles, and was reported to have been removed in 1984 or 1985. Two soil borings installed by the previous consultant (Azure Environmental) immediately west of the suspected former diesel UST location indicated impact by diesel peetroleum hydrocarbons. Azure suggested that it was unlikely that this diesel impact was part of the Tidewater release. We propose moving the proposed borings in this section of the site to further delineate the diesel impact around the former UST.

3. Despite obtaining low oxygen levels in extracted vapor from monitoring wells MW-11 and MW-14, and the historical inventory discrepancies, our access to efficiently delineate those few areas in the facility were restricted by the AST's, product pipelines in between the tanks, and other site features. This access issue was further complicated by the installation of liners around portions of the AST's, and extension of a gravel berm north past the settling pond area. PSG data results supported the idea that gasoline remained underneath at least two of the large AST's. The northernmost area (Gasoline Area #1) can be addressed with traditional drilling, with one boring moved closer to the center of the suspected impact.

4. Traditional drilling methods cannot be safely used around Gasoline Area's #2 and #3. Alas, this area likely has the highest suspected gasoline petroleum hydrocarbon impact in soil remaining on site, and incorporates the only existing well (MW-3) with hydrocarbon levels above action limits. During the site visit with William Fees from Ecology, CEECON suggested we may need to use Horizontal Directional Drilling (HDD) to access these areas. Mr. Fees concurred that HDD was a good option to access the areas under the AST's for soil remediation. HDD does not provide the best soil sampling results, especially when compared to traditional, vertical drilling, but conversion of soil borings to vapor-extraction lines might work well for soil remediation in these two areas.

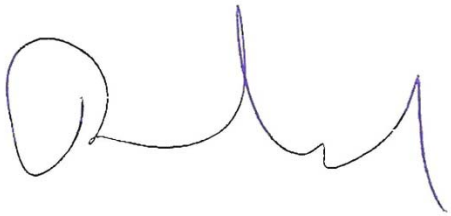
5. Site construction work has now made two wells, recovery well 1 (RW-1) and groundwater monitoring well 1 (MW-1), no longer useful for sampling water of any kind. CEECON proposes to abandon these two wells during upcoming drilling activities.

6. Additionally, we suspect that site construction work also contributed to two wells being filled with enough silt to make groundwater sampling almost impossible. These two groundwater monitoring wells, MW-2 and MW-11, were developed enough during the most recent groundwater monitoring event to allow for groundwater sample collection, but further well development may be undertaken during subsequent sampling activities

One presentation dilemma with trying to show new boring locations, based on field data up through the PSG results, is the site is too large to provide all of the useful information in just a few drawings. Instead, CEECON has provided several of the attached figures focusing on specific portions of the site. The attached figures indicate the remaining areas of concern, and where we propose specific soil boring location changes. The main goal of our RI/FS is to fill data gaps in data moving forward.

Please feel free to call us at (650) 827-7474 if you have any questions. We will be in touch shortly to discuss the status of this site further.

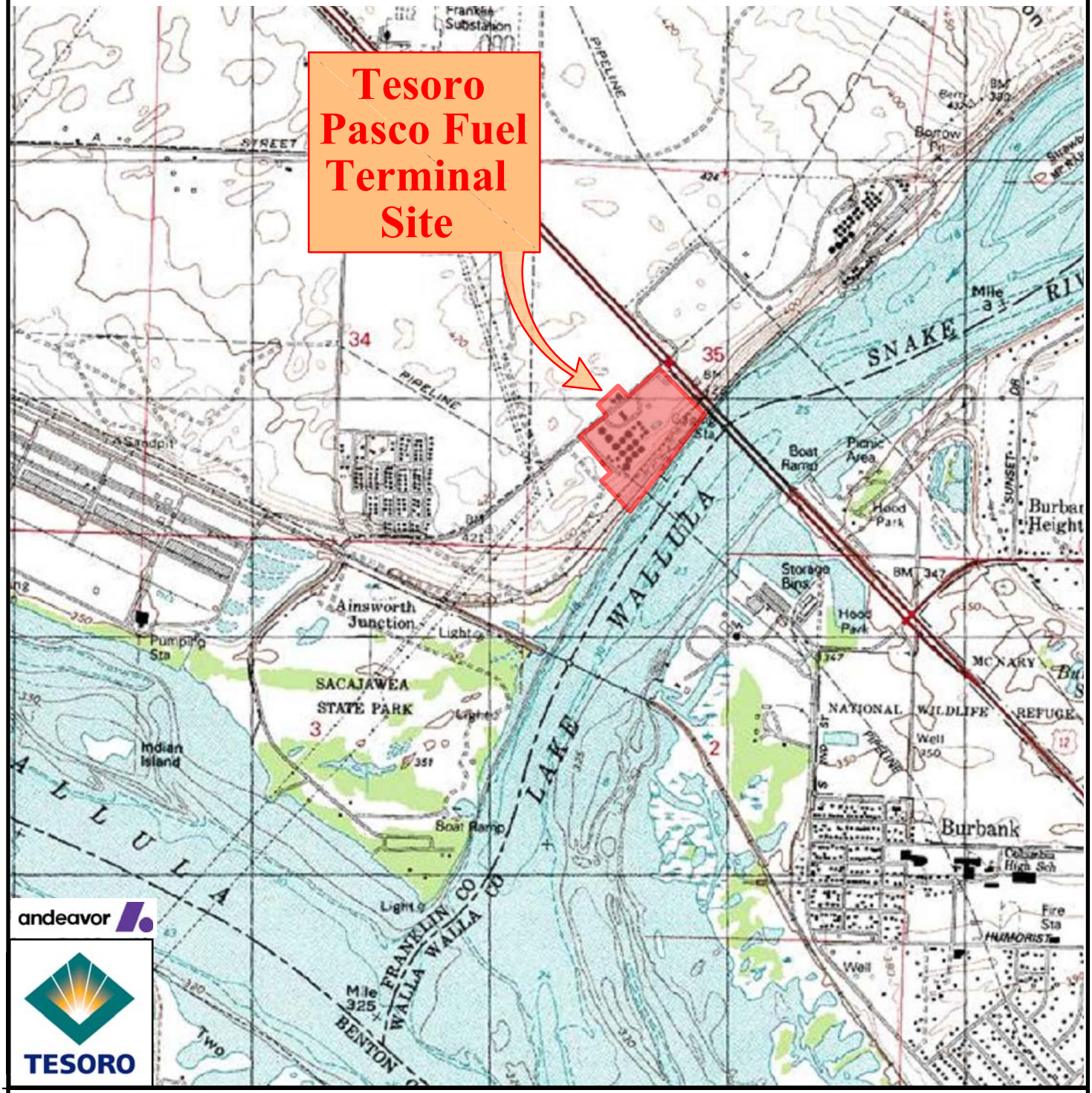
Sincerely,
CEECON Testing, Inc.



Michael Hodges
President

cc: Ms. Anastasia E. Duarte, RS – Andeavor – Andeavor Companies, Inc.
Brent Pierce, Dan Andersen, Tesoro Logistics LLC (Pasco)
Ms. Nicky Moody, Environmental Project Manager - Portland, AECOM

CEECON Testing, Inc.
434 North Canal Street, Suite Six
South San Francisco, CA 94080
CEECON@msn.com



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Map Source:
U.S.G.S. Pasco, Washington
1:24,000-scale series (topographic)
1992 edition

0 2,000'

Approximate scale (Feet)

N

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SITE VICINITY MAP
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 1

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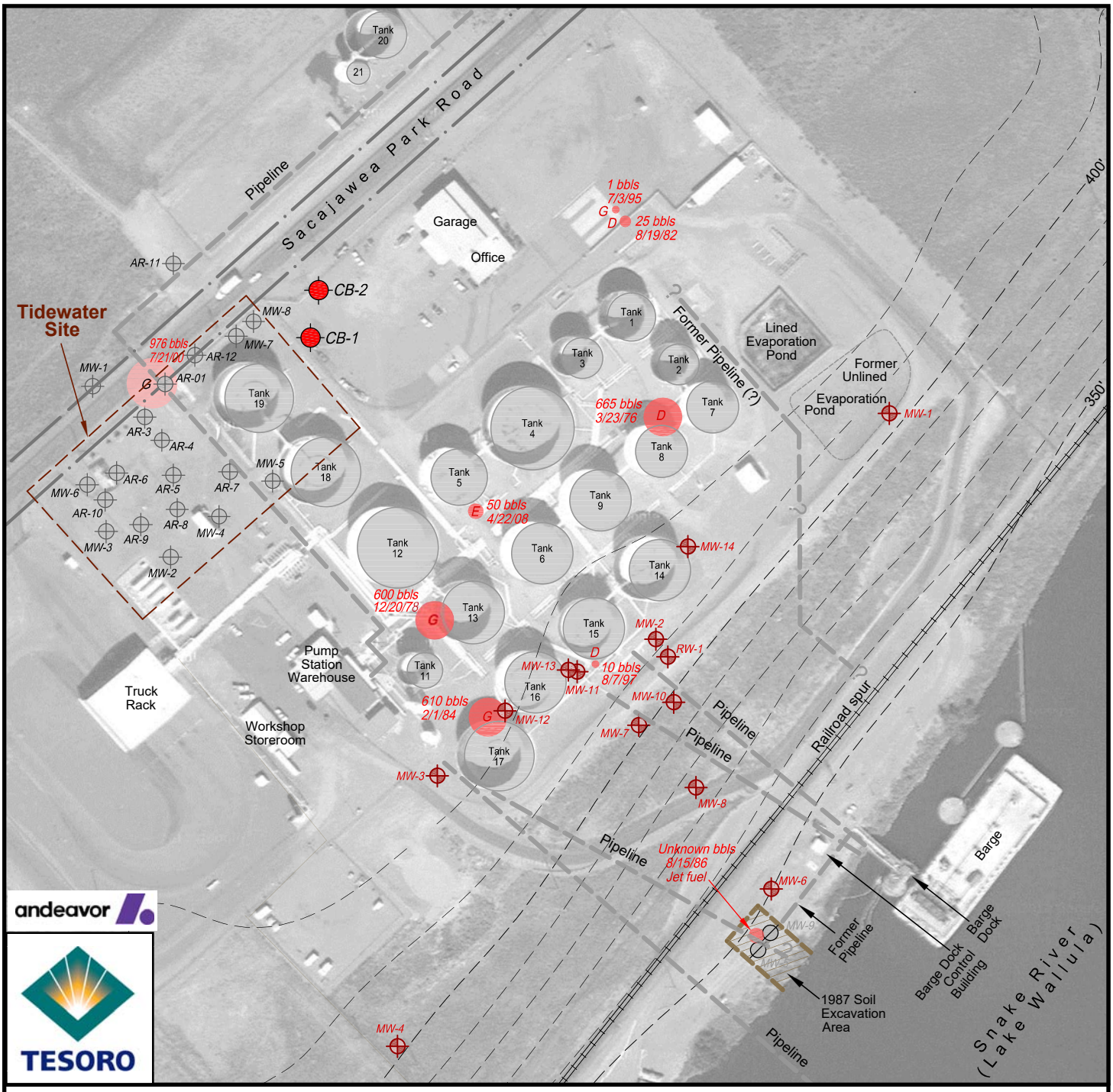

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EXPLANATION

- Tesoro well
- Tidewater well
- Former well
- Tesoro boring (6/15)

Previous spill

Number of barrels (circle relative to size of spill) — 610 bbls 2/1/84 G — Fuel spilled

Date of spill

Imagery: earthexplorer.usgs.gov
Site information: URS, 2011, GeoEngineers, 1987

0 200'

Approximate scale (Feet)

N

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SITE MAP

Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 2

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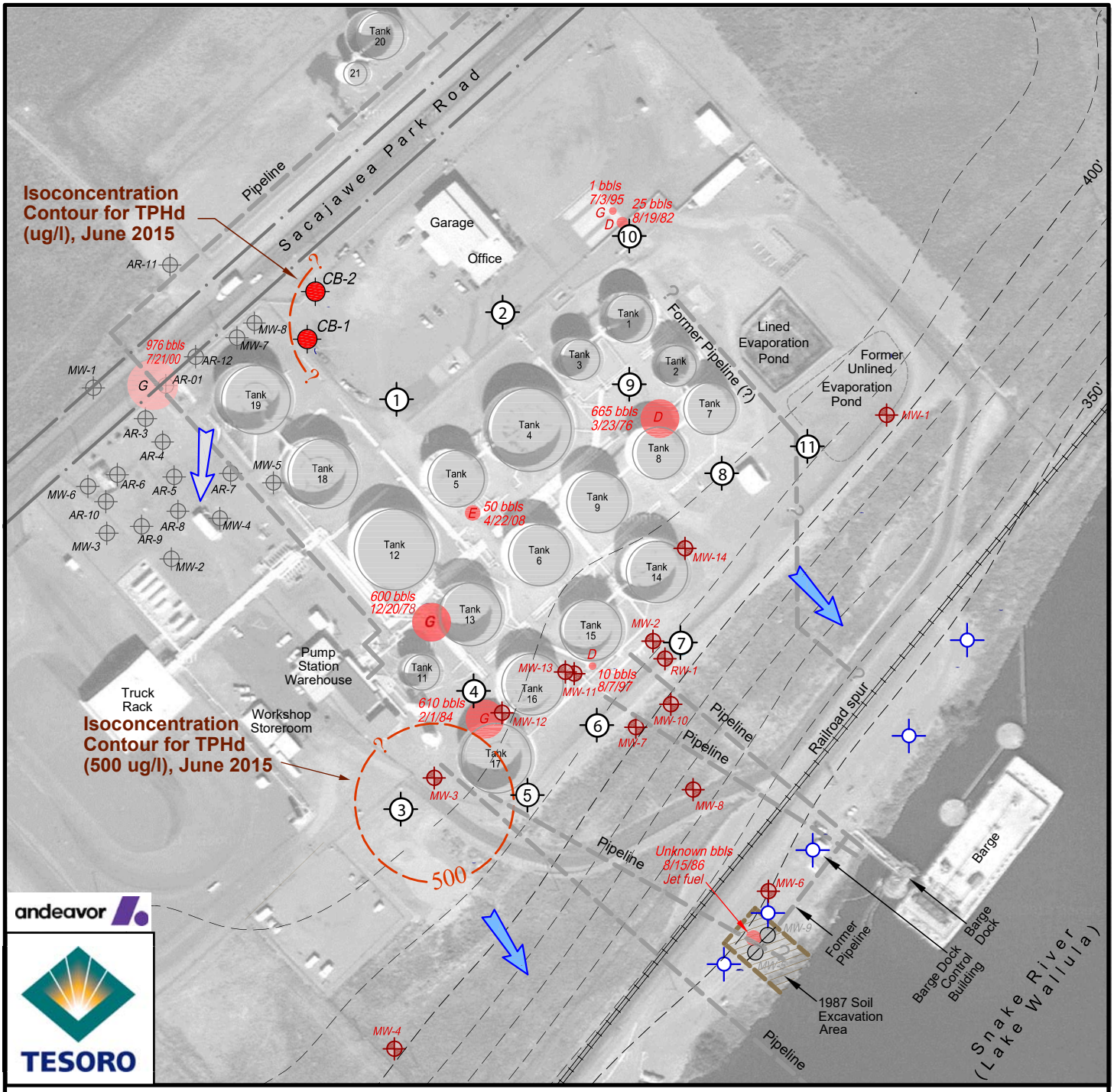

EXPLANATION

- Tesoro well
- Tidewater well
- Former well
- Tesoro boring (6/15)
- Ground-water flow direction inferred from current and historical conditions (nearly flat gradient)
- Ground-water flow direction near Snake River
- Original proposed upland area boring
- Original proposed shoreline area boring

Previous spill
Number of barrels (circle relative to size of spill)
610 bbls 2/1/84 — G — Fuel spilled
Date of spill

0 100' 200'

N

Imagery: earthexplorer.usgs.gov
Site information: URS, 2011
GeoEngineers, 1987

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SITE MAP
WITH ORIGINAL RI LOCATIONS
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 3

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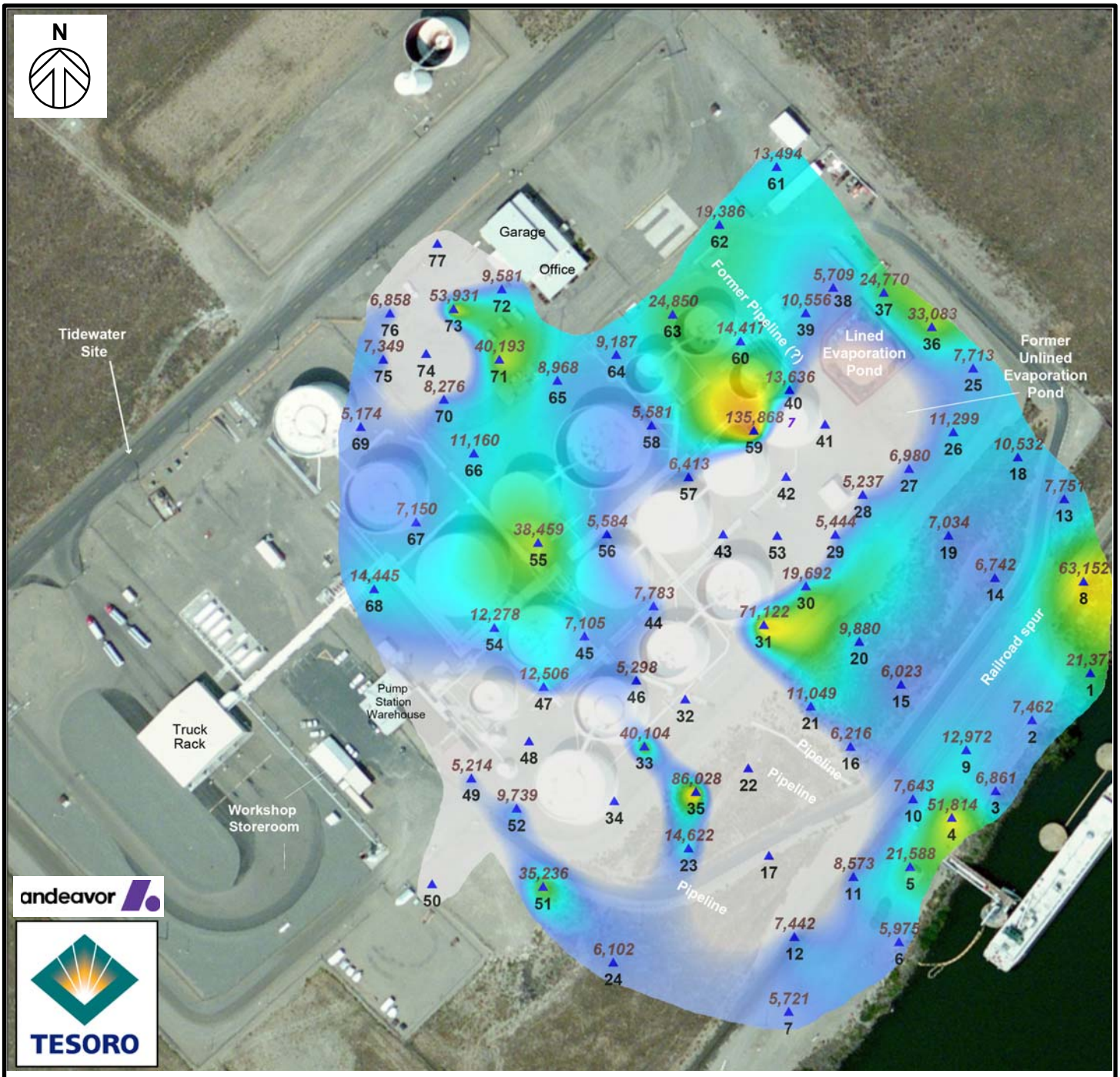

EXPLANATION

▲ Passive Soil Vapor Sample Location

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PASSIVE SOIL GAS SAMPLING - C-4 TO C-9
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 5

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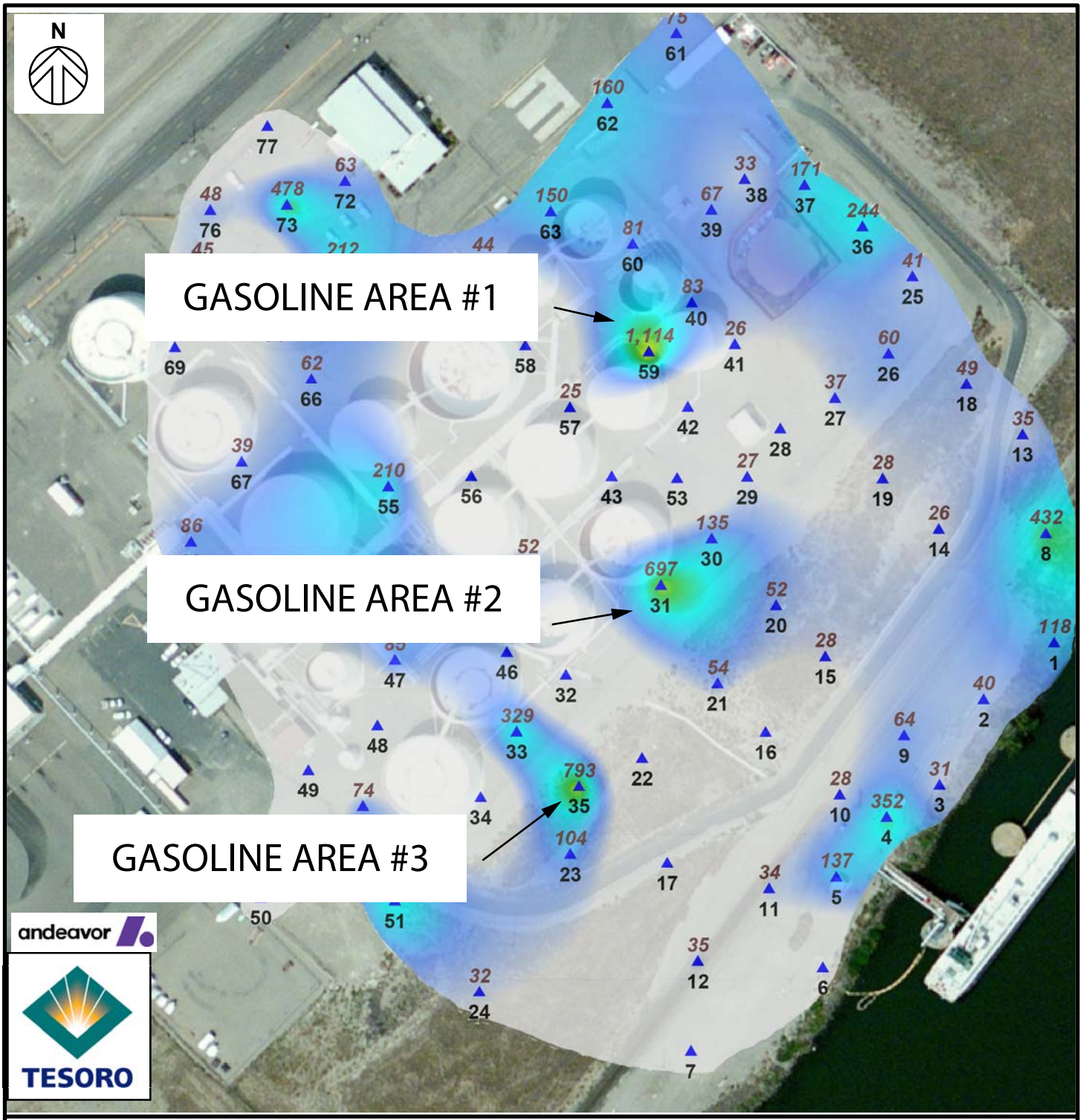

EXPLANATION

▲ Passive Soil Vapor Sample Location (benzene results)

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GASOLINE AREAS OF CONCERN #1, #2, and #3
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 6

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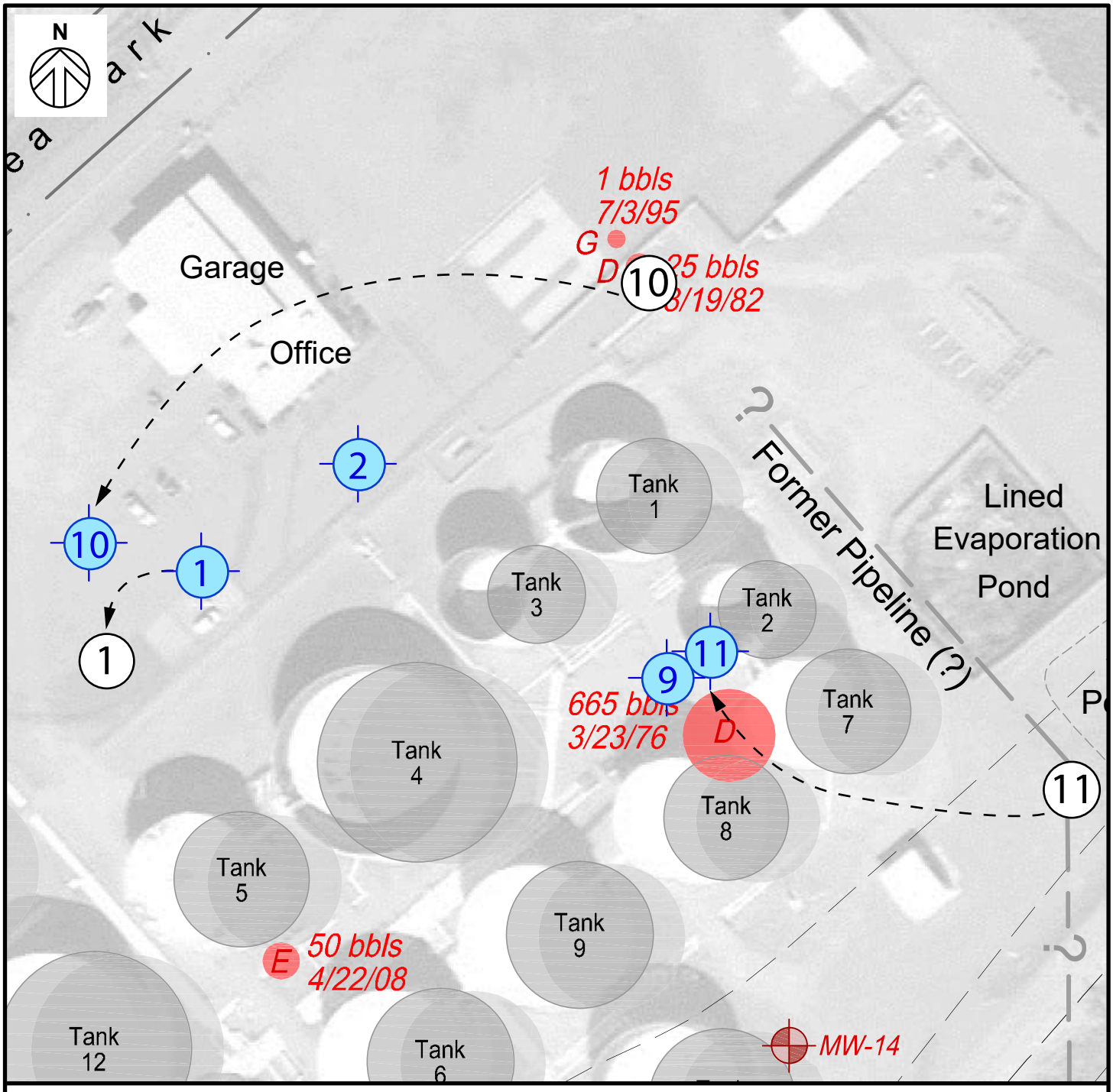

EXPLANATION

- Tesoro well
- (1) Revised proposed upland area well
- (1) Original proposed well location

Number of barrels (circle relative to size of spill) — Previous spill: 610 bbls, 2/1/84, G — Fuel spilled — Date of spill

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PROPOSED WELL LOCATIONS NEAR GASOLINE AREA #1 AND DIESEL AREA #1
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 7

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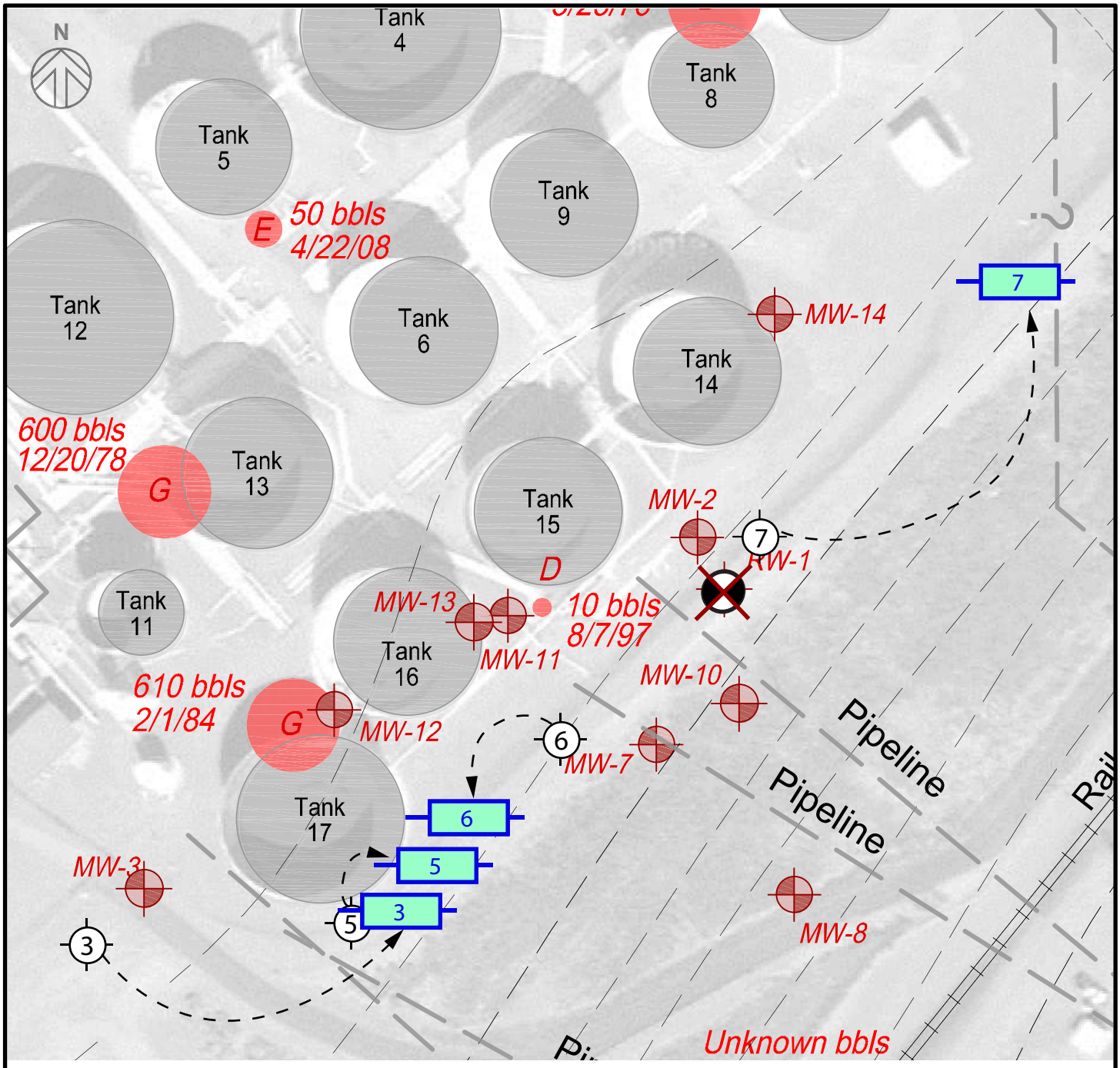

EXPLANATION

- Tesoro well
- Well proposed for abandonment
- 3 — Proposed horizontal well location
- 3 — Original proposed well location

Number of barrels (circle relative to size of spill) — Previous spill: 610 bbls 2/1/84 — Fuel spilled: G — Date of spill

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PROPOSED WELL LOCATIONS NEAR GASOLINE AREAS #2 and #3
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 8

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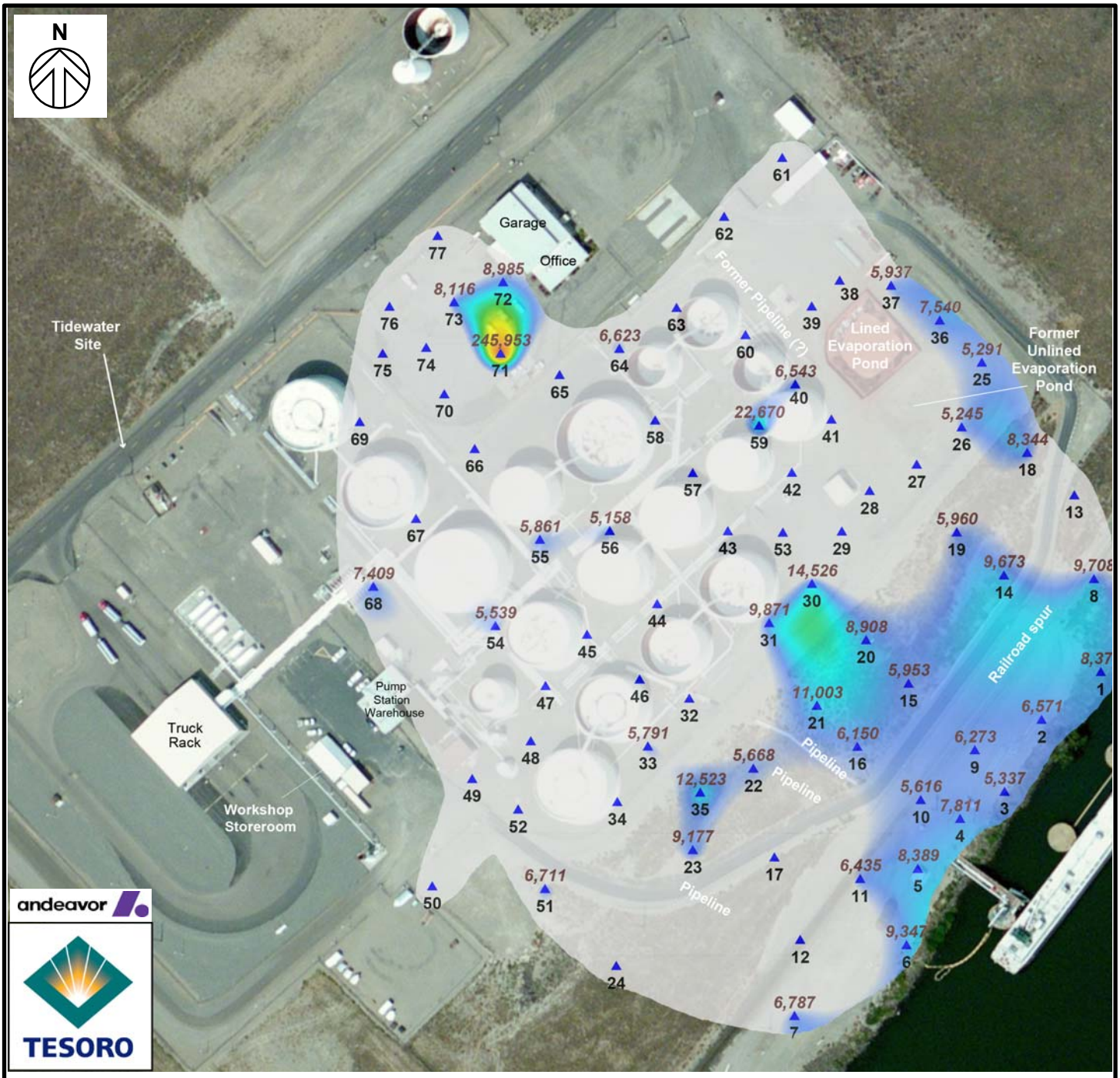
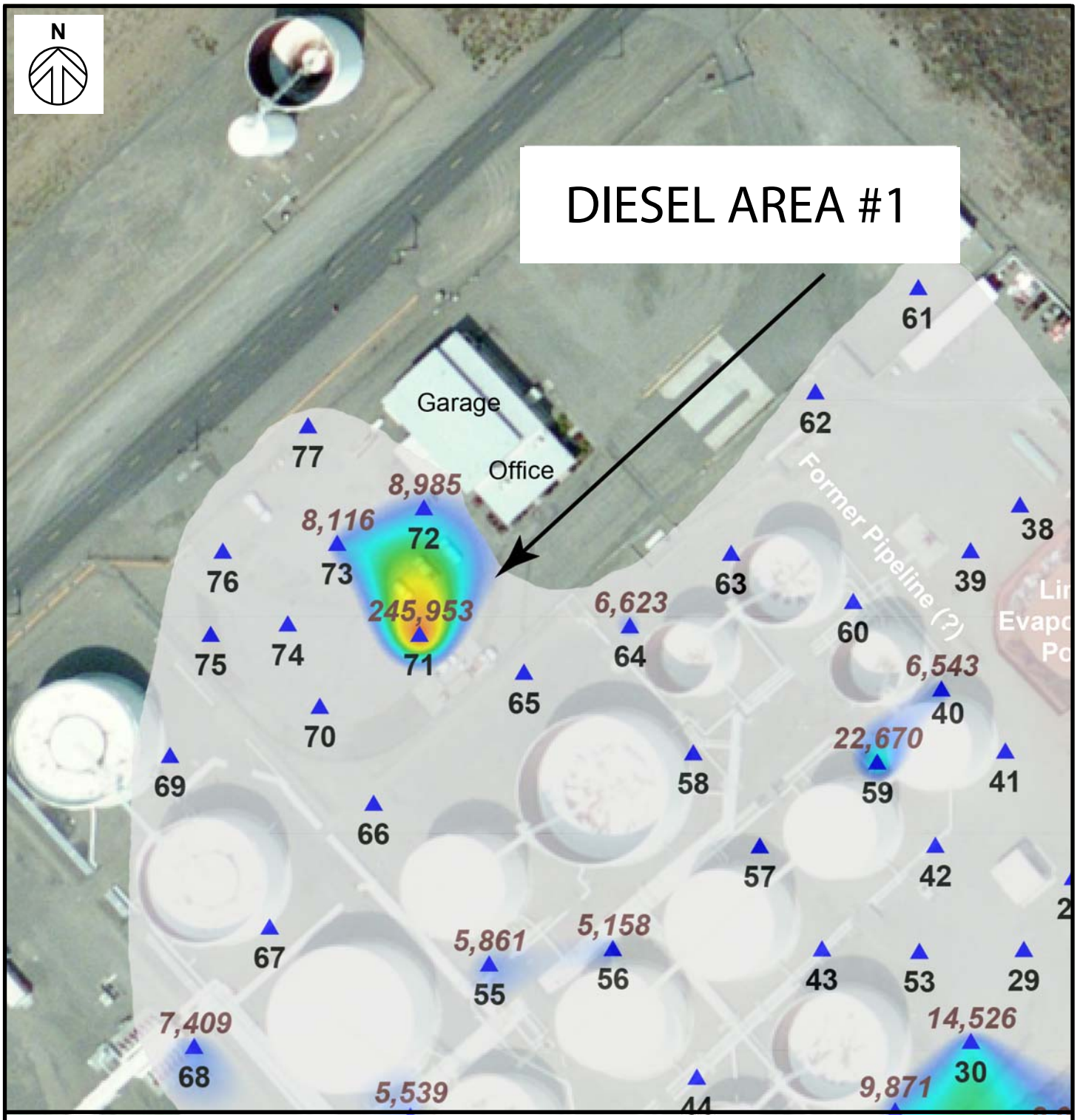


EXPLANATION

▲ Passive Soil Vapor Sample Location

CEECON	**PASSIVE SOIL GAS SAMPLING - C-10 TO C-15** Tesoro Pasco Fuel Terminal Site Pasco, Washington	**FIGURE 9** **OCT 2017**



EXPLANATION

▲ Passive Soil Vapor Sample Location

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DIESEL AREA #1
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 10

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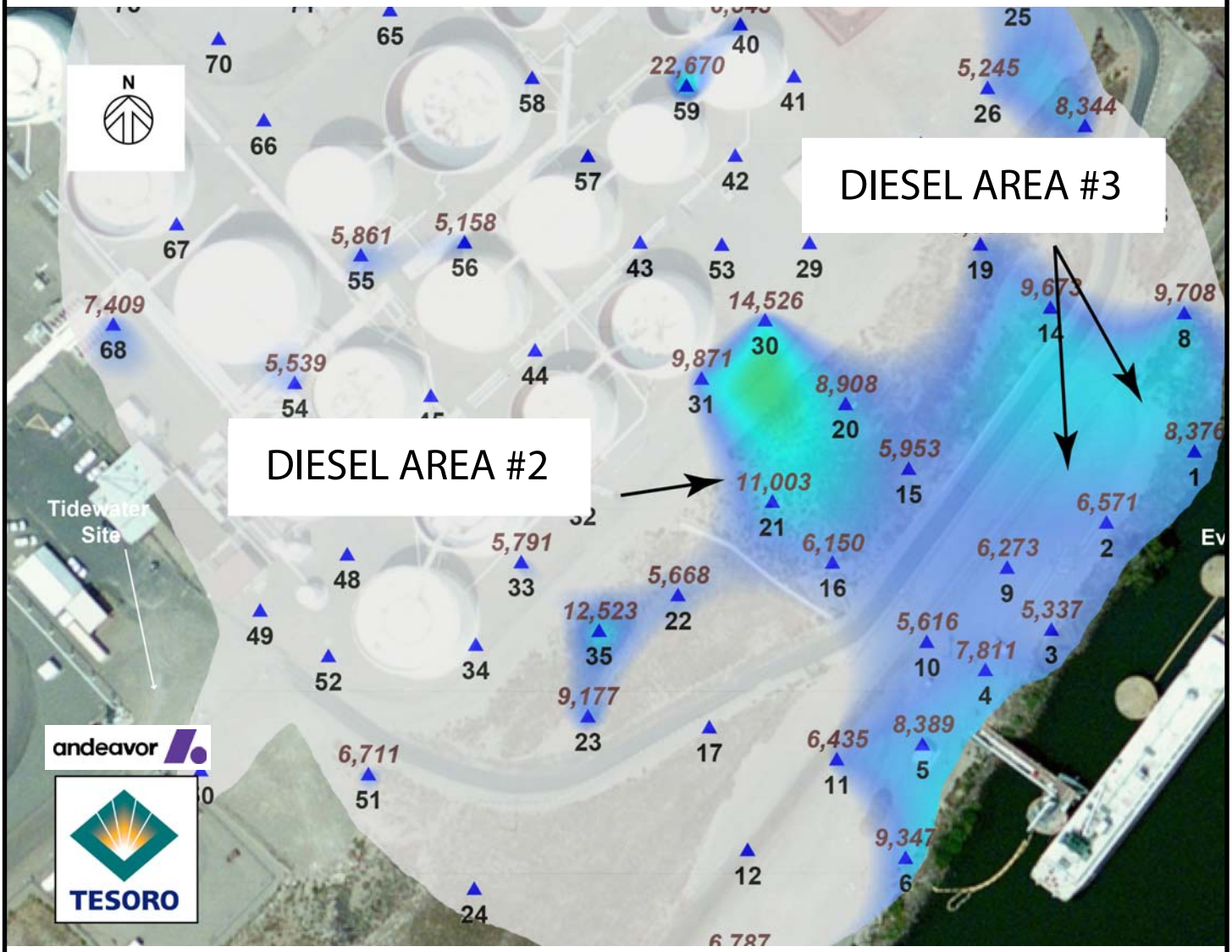

EXPLANATION

▲ Passive Soil Vapor Sample Location

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DIESEL AREAS #2 and #3
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 11

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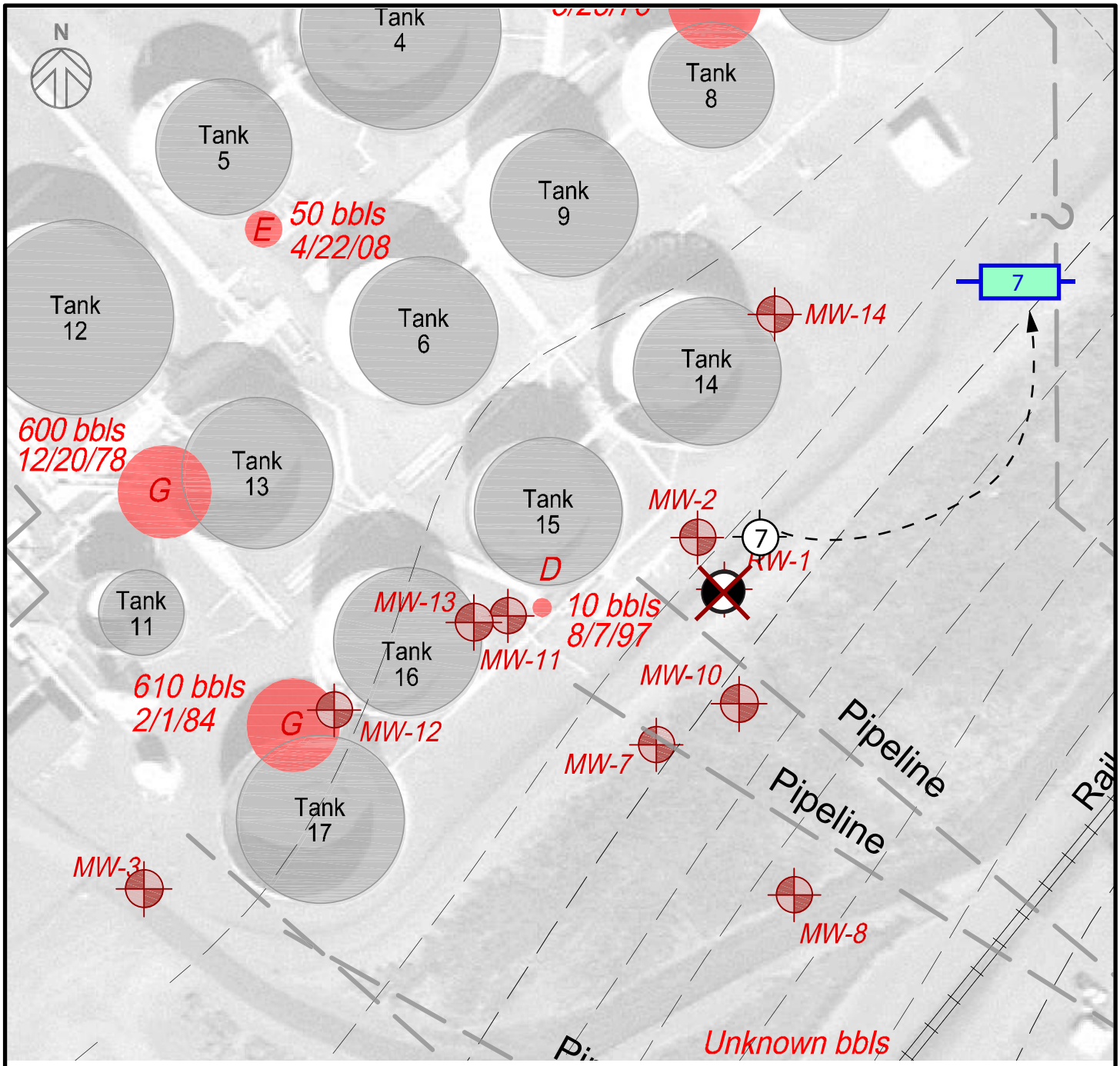

EXPLANATION

- Tesoro well
- Well proposed for abandonment
- 3 — Proposed horizontal well location
- 3 — Original proposed well location

Number of barrels (circle relative to size of spill) — Previous spill: 610 bbls, 2/1/84 (Date of spill) — Fuel spilled: G

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PROPOSED WELL LOCATIONS NEAR DIESEL AREAS #2 and #3
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 12

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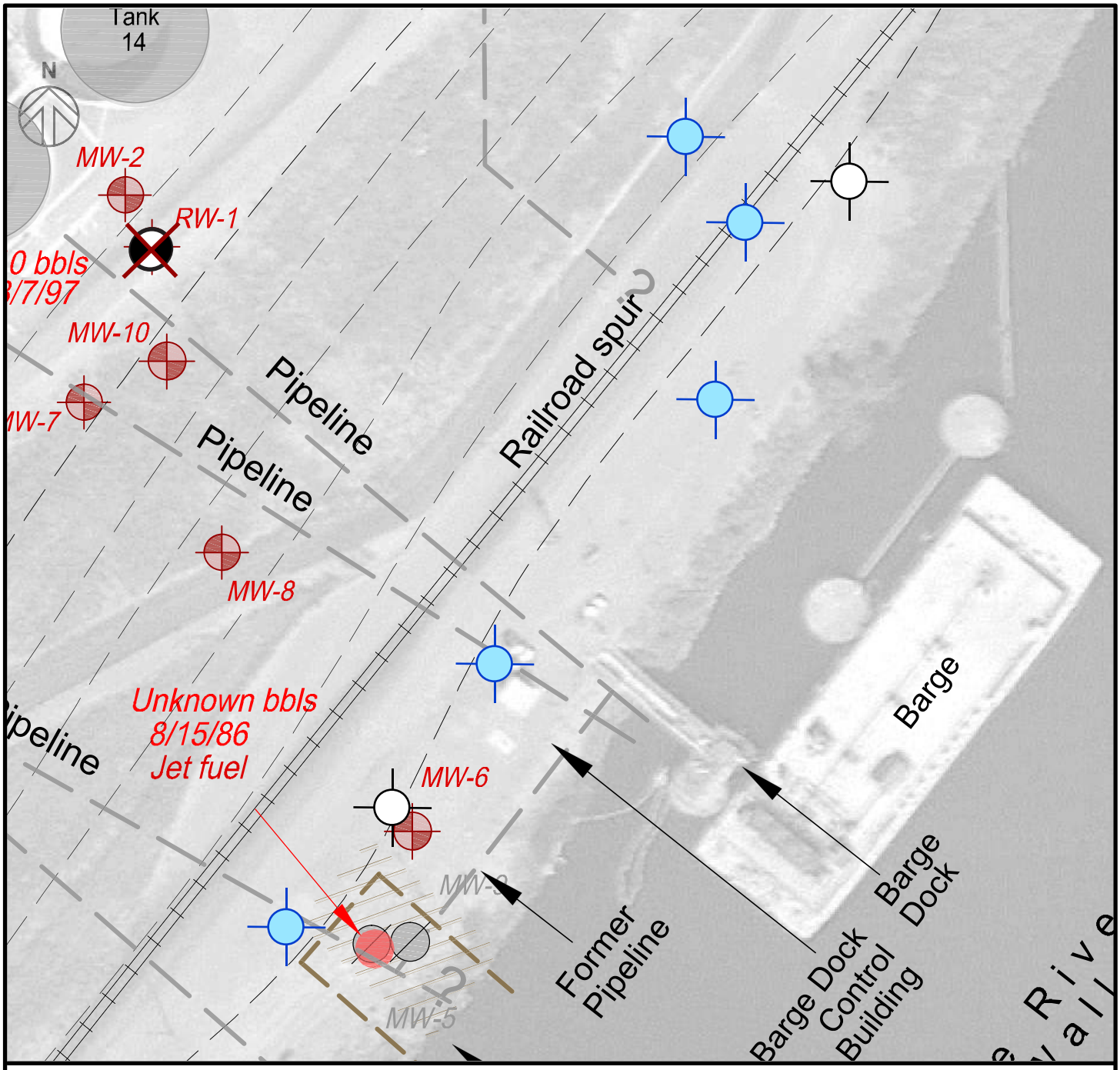

EXPLANATION

- Tesoro well
- Well proposed for abandonment
- Proposed shoreline boring location
- Original proposed shoreline boring location relocated

Number of barrels (circle relative to size of spill) — Previous spill: 610 bbls, 2/1/84 — Fuel spilled: G — Date of spill

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PROPOSED SHORELINE BORINGS
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 13

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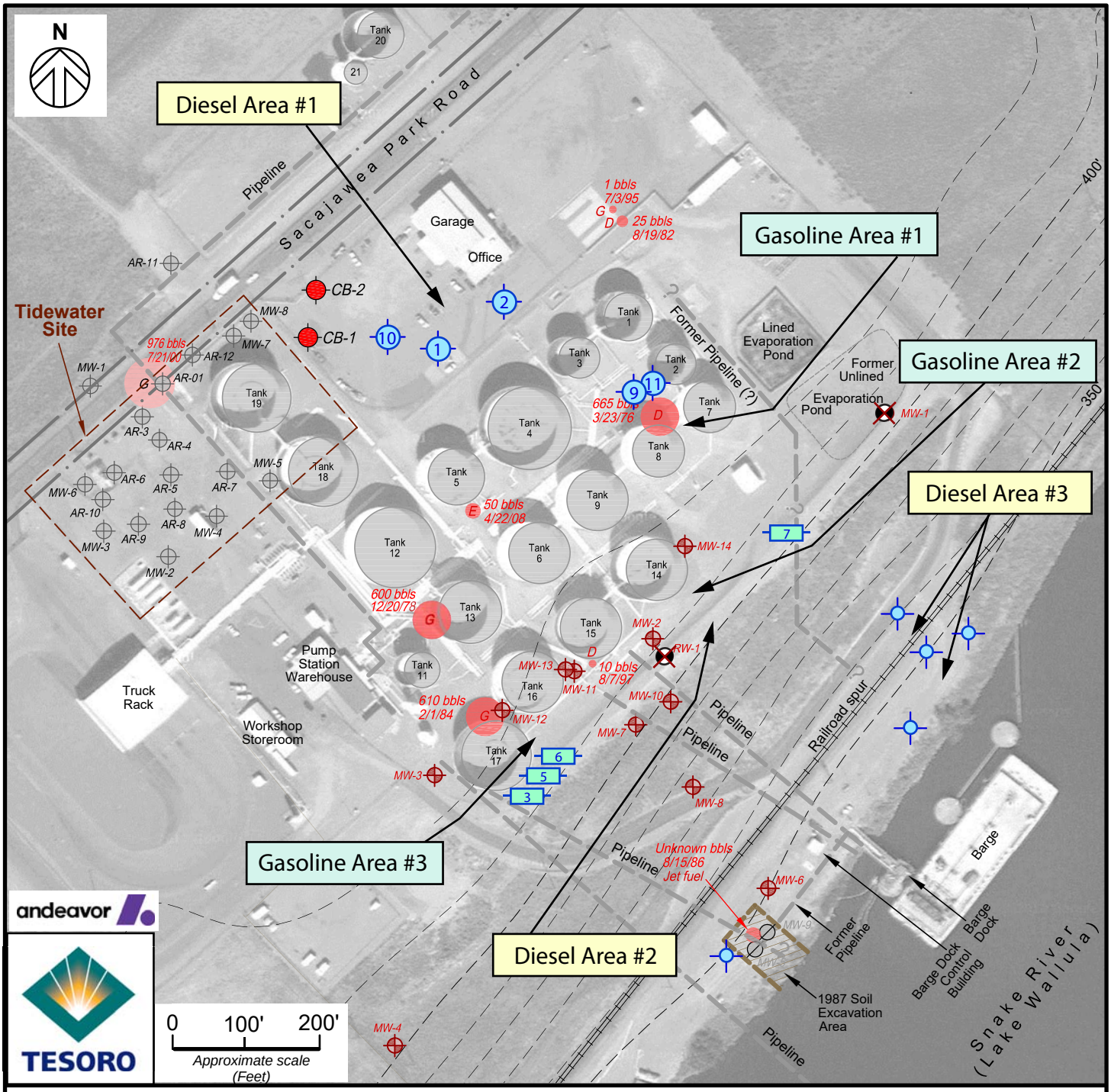

EXPLANATION

- Tesoro well
- Tidewater well
- Former well
- Tesoro boring (6/15)
- Wells proposed for abandonment
- Proposed upland area well
- Proposed shoreline area boring
- Proposed horizontal well location
- Ground-water flow direction inferred from historical conditions (nearly flat gradient)
- Ground-water flow direction near Snake River
- Ground-water elevation contour (feet MSL) (dashed where inferred)

Number of barrels (circle relative to size of spill) — Previous spill: 610 bbls 2/1/84 G — Fuel spilled; Date of spill

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REVISED RI LOCATIONS
Tesoro Pasco Fuel Terminal Site
Pasco, Washington

FIGURE 14

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