



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

1250 W Alder St • Union Gap, WA 98903-0009 • (509) 575-2490

April 11, 2018

Mr. Norman Cira
MWH Americas, Inc
175 W. Jackson Blvd, Suite 1900
Chicago, Illinois 60604

Re: 2014 Groundwater Assessment for the following Site:

- Name: GE Aviation LLC
- Address: 2720 W. Washington Ave, Yakima, WA
- Facility Site No.: 13175868
- Cleanup Site No.: 4662
- VCP No.: CE0374

Dear Mr. Cira:

The Washington State Department of Ecology (Ecology) received several requests for an opinion on your independent cleanup of the GE Aviation LLC facility (Site). This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70.105D RCW.

Please note that our database system ISIS, currently shows two outstanding requests for opinion from Ecology. The two requests pertain to the former Underground Storage Tank (UST) area at the site, and the monitoring well MW-7 area at the site. This letter is intended to address both of these areas (both outstanding opinion requests).

Issues Presented and Opinions

1. Is further remedial action necessary to clean up contamination at the Site?

NO. Ecology has determined that no further remedial action is necessary to clean up contamination at the Site.

Description of the Site

This opinion applies only to the Site described below. The Site is defined by the nature and extent of contamination associated with the following releases:

- Gasoline-range, diesel-range and heavy-oil range organics into the Soil.
- Diesel-range organics and gasoline range organics into the Groundwater.



Detailed diagrams of the Site as currently known to Ecology are shown in Figure 2 (Site Plan and Sample Locations) from each of the three 2013 reports (*Former Underground Storage Tank Investigation Report*, *Monitoring Well MW-7 Investigation Report*, and the *Phase II Environmental Site Assessment*). Also included in Figure 3 (Groundwater Potentiometric Surface June 2012) from *Former Underground Storage Tank Investigation Report*.

Basis for the Opinion

This opinion and analysis was based on the information contained in the following documents:

1. Email from Ecology (Jennifer Lind) to MWH dated March 27, 2015, re Ecology opinion temporarily on hold until clarification of issues from 3/11/15.
2. *2014 Groundwater Assessment, GE Aviation Facility*, prepared by MWH Americas, dated February 12, 2015.
3. Letter from Ecology (John Mefford) to MWH dated July 7, 2014 regarding draft Work Plan, Quarterly Groundwater Monitoring.
4. *Groundwater Monitoring Report, 1st Quarter 2014, GE Aviation – Yakima, WA*, MWH Americas, Inc., April 2014.
5. Letter from MWH (Norman Cira) to Ecology (Norm Hepner) dated February 28, 2014 summarizing October 16, 2013 meeting.
6. *Draft Work Plan, Quarterly Groundwater Monitoring*, MWH Americas, Inc, January 23, 2014 (4 page letter).
7. Letter from MWH (Norman Cira) to Ecology (Norm Hepner) dated August 21, 2013 providing responses to Ecology's June 28, 2013 email comments.
8. Email from Ecology (Norm Hepner) to MWH (Norman Cira) providing comments on three 2013 Reports (*Former UST Investigation Report*, *Monitoring Well MW-07 Report*, and *Phase II Environmental Site Assessment*).
9. *Former Underground Storage Tank Investigation Report, GE Aviation, Yakima, WA* MWH Americas, Inc., May 2013.
10. *Monitoring Well MW-07 Investigation Report, GE Aviation, Yakima, WA*, MWH Americas Inc., May 2013.
11. *Phase II Environmental Site Assessment: GE Aviation- Yakima, WA*, MWH Americas, Inc, May 2013.
12. *Site Assessment Engineering Report, Underground Storage Tank Removal,* PLSA Engineering & Surveying, February 2008.

Those documents are kept in the Central Regional Office (CRO) of Ecology for review by appointment only. You can make an appointment by calling the CRO public records coordinator at (509) 454-7658. This opinion is void if any of the information contained in those documents is materially false or misleading.

Analysis of the Cleanup

Ecology has concluded that no further remedial action is necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

1. Characterization of the Site.

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A**.

UST Area

A release from the former UST was documented in the *Site Assessment Engineering Report, Underground Storage Tank Removal*,” PLSA Engineering & Surveying, February 2008 including petroleum hydrocarbons into soil and groundwater. These included detections of kerosene and lube oil range hydrocarbon in soil and water within the tank excavation, and detections of gasoline range oil in soil. Petroleum contaminated soils were removed based on visual and olfactory observations as discussed in the February 2008 report.

In 2013, subsurface soil samples were collected in the vicinity of the former UST by MWH and analyzed for NWTPH-Dx, EPH, and PCBs. One groundwater sample was collected from monitoring well MW-8, installed near to and downgradient of the former UST and analyzed for NWTPH-Dx, EPH, and PCBs. No cleanup level exceedances were noted in any of the 2013 soil or groundwater samples. Ecology noted in our July 2014 letter a gasoline exceedance in a soil sample during the 2008 UST removal, and requested analysis for gasoline be added to groundwater monitoring rounds.

In 2014, well MW-8 was sampled four times (in March, June, September and December) for NWTPH-Dx, EPH, and BTEX. The December sample was also analyzed for NWTRPH-Gx. No cleanup level exceedances were found in any of these samples. Based on the collected soil and groundwater data in 2013 and 2014, the contaminated soil excavation work conducted in 2008 has resulted in all soil and groundwater below cleanup levels.

MW-7 Area

During the 2013 Phase II ESA, monitoring well MW-7, located southwest of the UST area, resulted in a cleanup level exceedance for total PCBs. After consultation with Ecology, the monitoring well was redeveloped, and resampled. The second sample resulted in no cleanup level exceedances, and the PCBs were concluded to be associated with turbidity, as opposed to dissolved phase which would be a the pathway of concern for a drinking water supply well. In order to further confirm the lack of a PCB source in this area, three soil borings were installed surrounding MW-7 and soil samples were collected from each soil boring from two depths and analyzed for NWTPH-Dx, EPH, and PCBs. None of these soil samples resulted in any cleanup level exceedances. Therefore, Ecology has concluded that there was no evidence of a PCB source in this area. The exact cause of the PCBs associated with turbidity in monitoring well MW-7 is uncertain; however, no additional investigation appears warranted based on available data.

Metals in Soil and Groundwater

A total of 15 metals were analyzed for in the 53 soil samples. Other than lead and arsenic, none of the metals had any exceedances of the Method A clean up levels for soil. It should be noted that lead and arsenic are commonly found in shallow soils at concentrations above Method A cleanup levels due to the historical use lead arsenate in orchards.

One detection of lead (260 mg/kg) in soil slightly exceeded the Method A cleanup level of 250 mg/kg. Ecology performed statistical analysis of this soil exceedance and found that the 95% confidence interval for the true mean of the soil samples analyzed for lead was 19 mg/kg, well below the cleanup level of 250 mg/kg. The one exceedance constituted 1.9% of the 53 soil samples analyzed for lead and the exceedance was much less than twice the cleanup level.

Two soil samples had arsenic concentrations exceeding the Method A cleanup level (25 mg/kg and 57 mg/kg). These exceedances constituted 3.8% of the samples analyzed for arsenic. The upper 95% confidence interval for the true mean of the soil samples analyzed for arsenic was 4.5 mg/kg, well below the Method A cleanup level of 20 mg/kg.

Ecology considers no further action to be warranted with respect to lead and arsenic in soils.

The 15 metals (plus hexavalent chromium) were also analyzed for in 32 groundwater samples. Initially, several metals including lead and chromium were detected at concentrations exceeding the Method A cleanup level for groundwater. These exceedances were thought to be associated with turbidity in the monitoring wells and not representative of drinking water. The monitoring wells were redeveloped and resampled. No metal exceedances were found in the monitoring well samples after redevelopment; hence the previous exceedances are concluded by Ecology to be associated with turbidity and not representative of drinking water.

Ecology considers no further action to be warranted with respect to lead and arsenic in soils.

Methylene Chloride in Soil

A total of 53 soil samples were analyzed for volatile organic compounds (VOCs) including methylene chloride. Methylene chloride was detected in 2 of 53 samples (3.8%) at concentrations of 0.041 and 0.046 mg/kg, above the Method A cleanup level of 0.02 mg/kg. Methylene chloride was also detected in a trip blank, a rinsate blank, and a method blank. The 95% confidence on the true mean was 0.009 mg/kg, well below the cleanup level of 0.02 mg/kg. The methylene chloride detected in soil appears to likely be attributable to the analytical laboratory, based on the detection in blank samples.

Ecology considers no further action to be warranted with respect to methylene chloride in soils.

2. Establishment of cleanup standards.

Substance-specific standards.

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

Method A cleanup levels for Unrestricted Land Uses have been applied at the site and include:

Hazardous Substance	Method A Soil Cleanup Level (mg/kg)	Method A Groundwater Cleanup Level (µg/L)
Gasoline Range Organics	100 (benzene absent)	1,000 (benzene absent)
Diesel Range Organics	2,000	500
Heavy Oils	2,000	500
PCB Mixtures	1	0.1

A standard point of compliance (throughout the site) has been selected.

3. Selection of cleanup action.

Ecology has determined the cleanup action you selected for the Site meets the substantive requirements of MTCA.

4. Cleanup.

Ecology has determined the cleanup you performed meets the cleanup standards established for the Site. The soil excavation work that was conducted in 2007 has resulted in soil and groundwater achieving the Method A soil and groundwater cleanup levels. Ecology notes that any residual petroleum hydrocarbons in the subsurface are anticipated to further undergo natural attenuation.

Limitations of the Opinion

1. Opinion does not settle liability with the state.

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion **does not**:

- Resolve or alter a person's liability to the state.
- Protect liable persons from contribution claims by third parties.

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To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70.105D.040(4).

2. Opinion does not constitute a determination of substantial equivalence.

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you performed is substantially equivalent. Courts make that determination. *See* RCW 70.105D.080 and WAC 173-340-545.

3. State is immune from liability.

The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70.105D.030(1)(i).

Termination of Agreement

Thank you for cleaning up the Site under the Voluntary Cleanup Program (VCP). This opinion terminates the VCP Agreement governing this project (#CE0374).

For more information about the VCP and the cleanup process, please visit our web site: www.ecy.wa.gov/programs/tcp/vcp/vcpmain.htm.

If you have any questions about this opinion or the termination of the Agreement, please contact me by phone at (509) 454-7835 or e-mail at frank.winslow@ecy.wa.gov.

Sincerely,



Frank P. Winslow
Site Manager
CRO Toxics Cleanup Program

Enclosures: Enclosure A – Site Description

cc: VCP Financial Manager

Enclosure A – Site Description

PHASE II ENVIRONMENTAL SITE ASSESSMENT

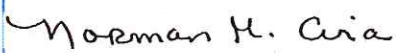
GE AVIATION – YAKIMA, WA

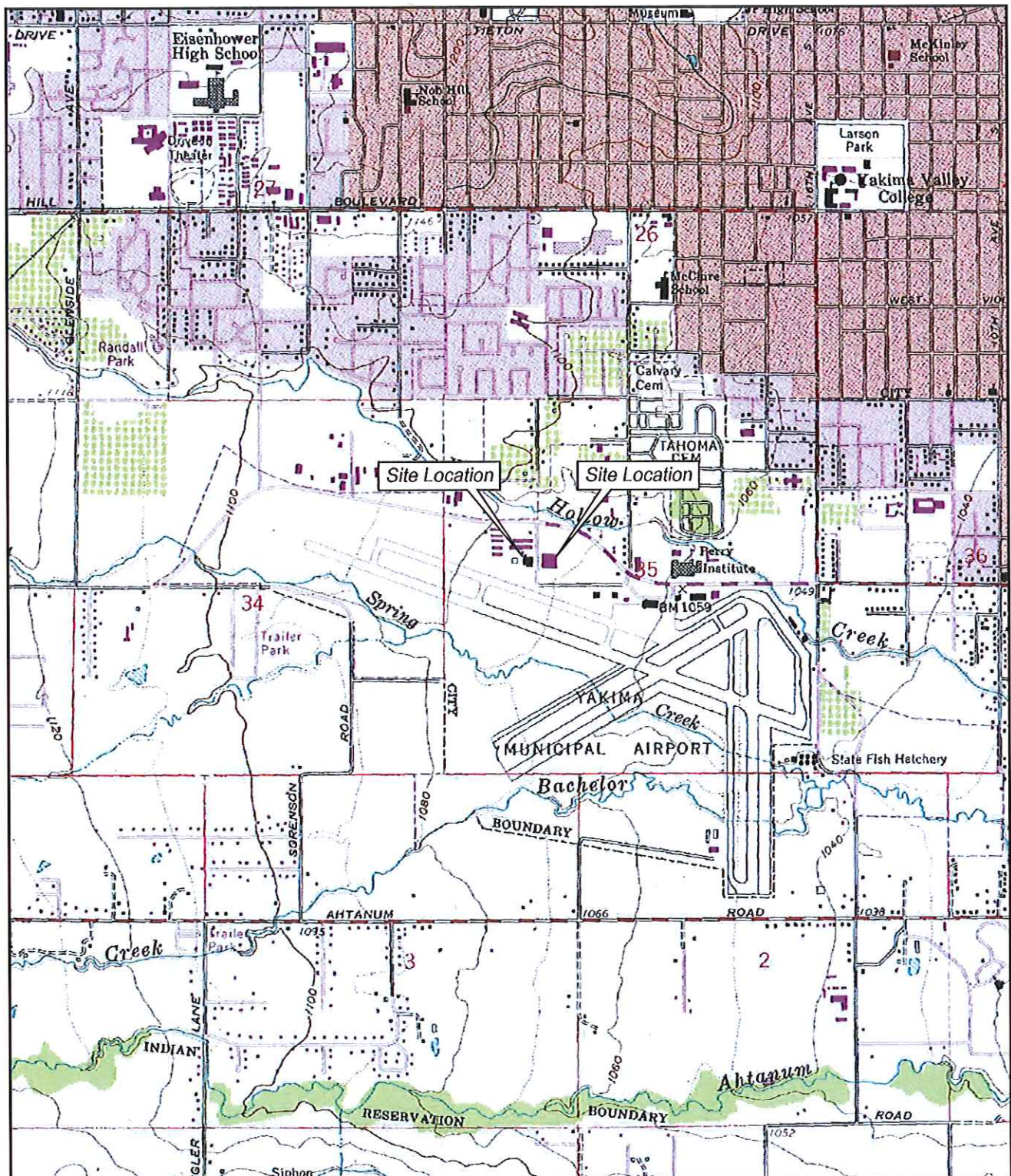
Prepared for: GE Aviation
1 Neumann Way MD E70
Cincinnati, Ohio 45215

Date: May 2013

Prepared by: MWH Americas, Inc.
806 SW Broadway, Suite 200
Portland, Oregon 97205

Project No.: 1010884

	
Prepared by	Meghann Chell, PE, MWH Engineer
	
Reviewed by	Norman (Mike) Cira, MWH Principal Environmental Scientist



SOURCE: U.S.G.S. 7.5' QUAD SHEET
YAKIMA WEST, WASHINGTON
REVISED 1981

NOTE: SITE LOCATION INCLUDES TWO
SEPARATE PROPERTIES

0 FEET 2000



MWH

GE AVIATION
2720, 2804-2806, & 2808 W. WASHINGTON AVE.
YAKIMA, WASHINGTON

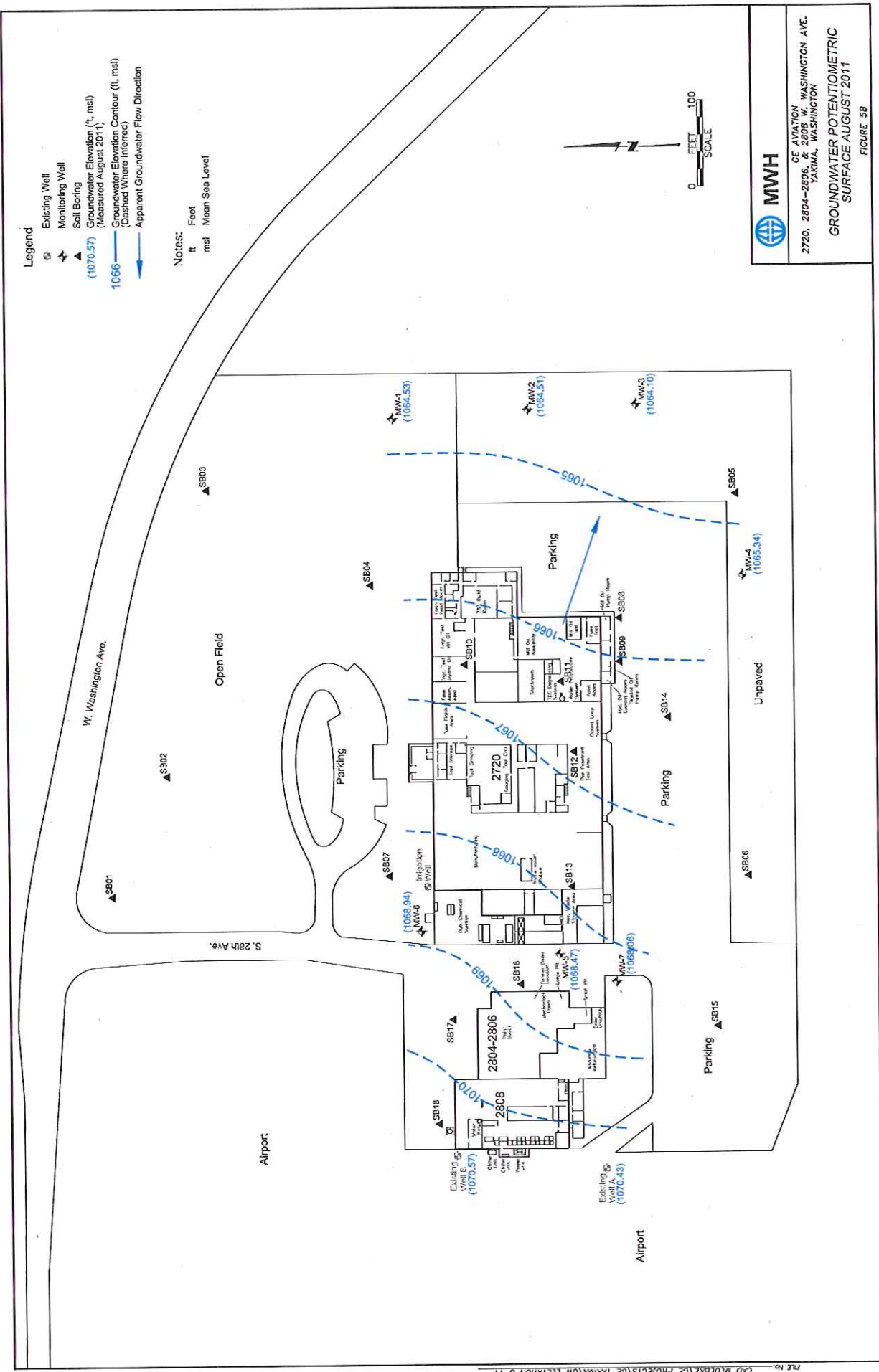
SITE LOCATION MAP

FIGURE 1

Legend

- Existing Well
- Monitoring Well
- Soil Boring
- Groundwater Elevation (ft. msl)
(1070.57)
- Groundwater Elevation Contour (ft. msl)
(1066)
- Groundwater Elevation Contour (ft. msl)
(Dashed Where Inferred)
- Apparent Groundwater Flow Direction

Notes:
ft
ft
msl
Mean Sea Level



GE AVIATION
2720, 2804-2806, & 2808 W. WASHINGTON AVE.
YAKIMA, WASHINGTON

**GROUNDWATER POTENTIOMETRIC
SURFACE AUGUST 2011**

FIGURE 58

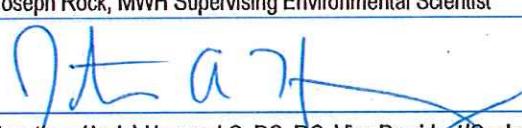
MONITORING WELL MW-07 INVESTIGATION REPORT

GE AVIATION – YAKIMA, WA

Prepared for: GE Aviation
1 Neumann Way MD E70
Cincinnati, Ohio 45215

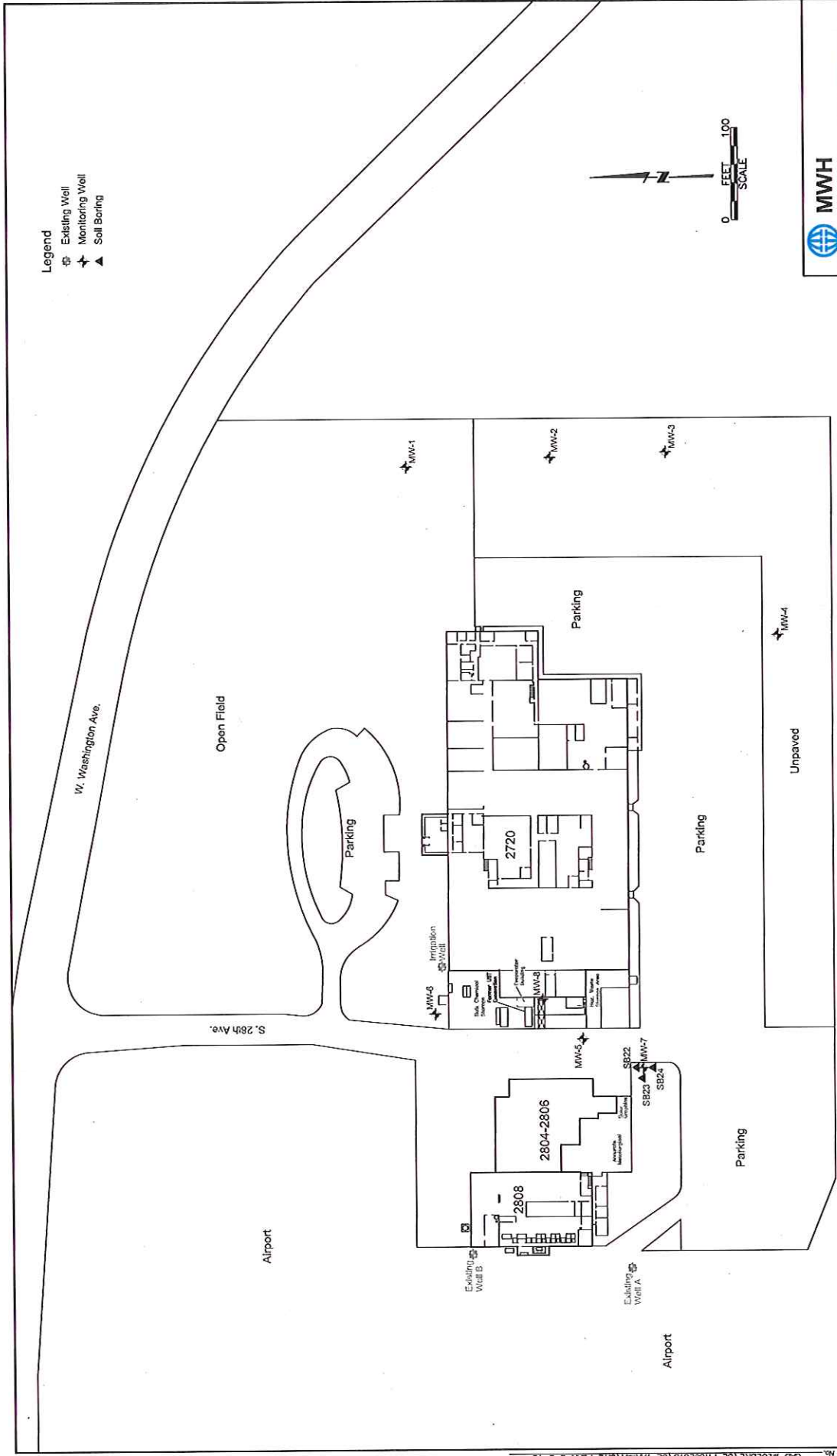
Date: May 2013

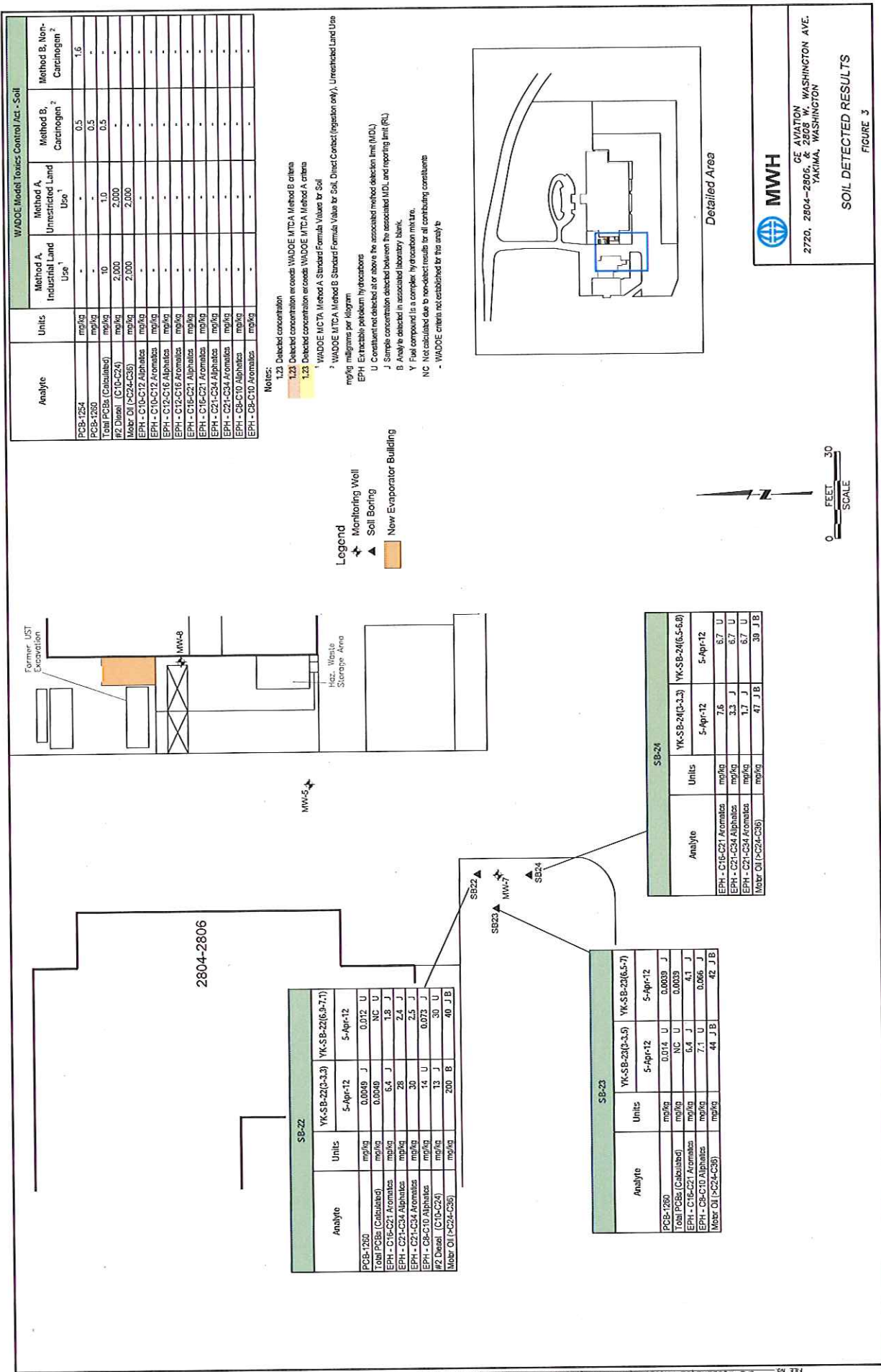
Prepared by: MWH Americas, Inc.
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Prepared by	Joseph Rock, MWH Supervising Environmental Scientist
	
Reviewed by	Jonathan (Andy) Hersey, LG, PG, RG, Vice President/Geologist



Jonathan Andrew Hersey
Expires July 19, 2013





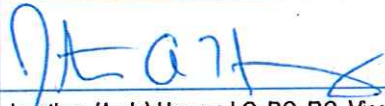
FORMER UNDERGROUND STORAGE TANK INVESTIGATION REPORT

GE AVIATION – YAKIMA, WA

Prepared for: GE Aviation
1 Neumann Way MD E70
Cincinnati, Ohio 45215

Date: May 2013

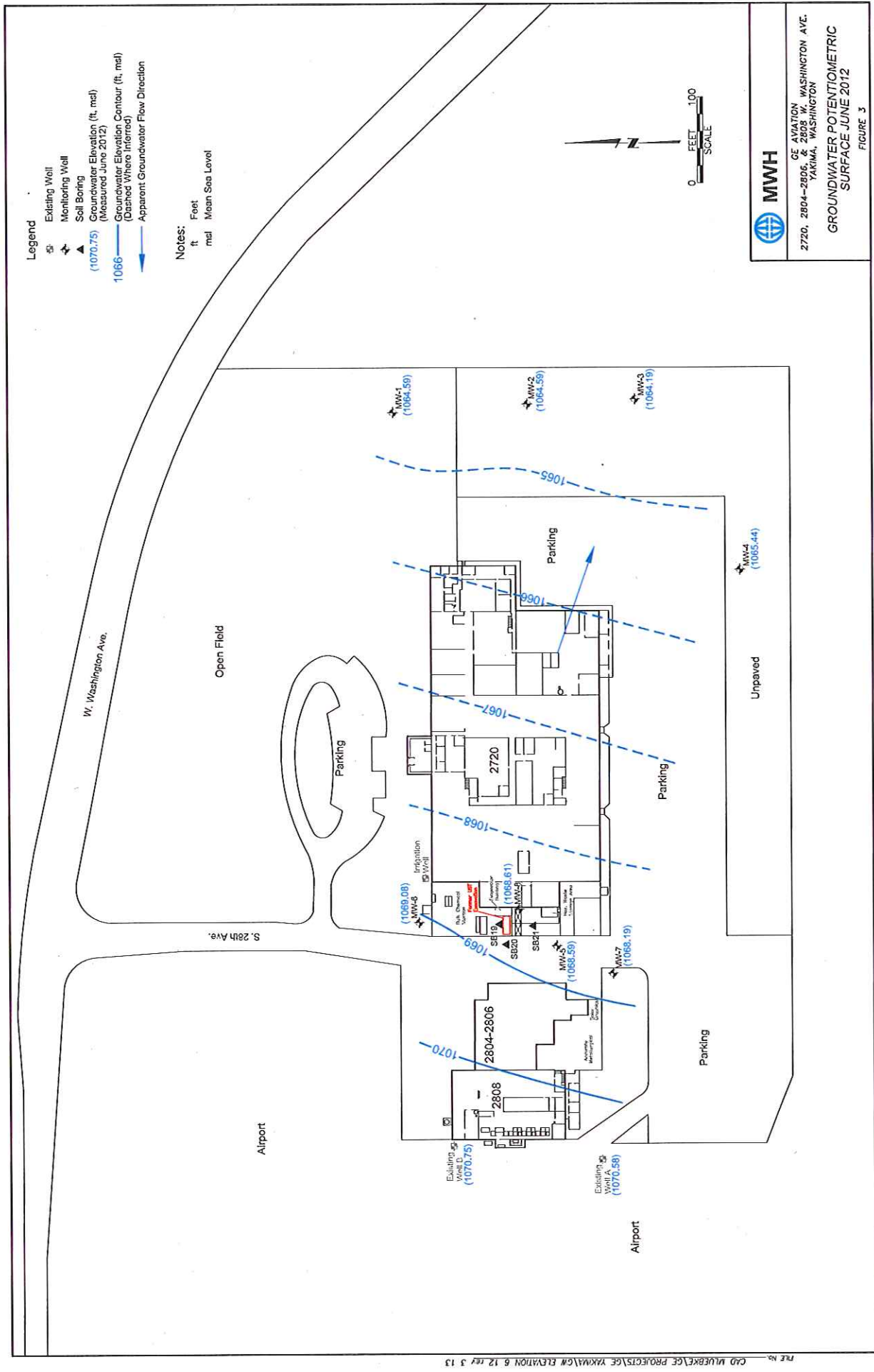
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Jonathan Andrew Hersey

Expires July 19, 2013



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