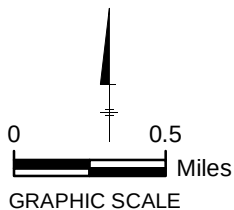


CITY: HIGHLANDS RANCH, CO DIV/GROUP: ENV/IM DB: BGiffith LD: G FRANCE
Path: \\ARCADIS\GIS\PROJECTS\ENVI\HRA\North Pole\Map\GWS_Monitoring\2013_01\MXD\Fig 2-1 Site location.mxd Date: 4/30/2013 Time: 2:37:07 PM



LEGEND:

 FHRA PROPERTY
BOUNDARY



Note:
Image provided courtesy of Pictometry International 2012

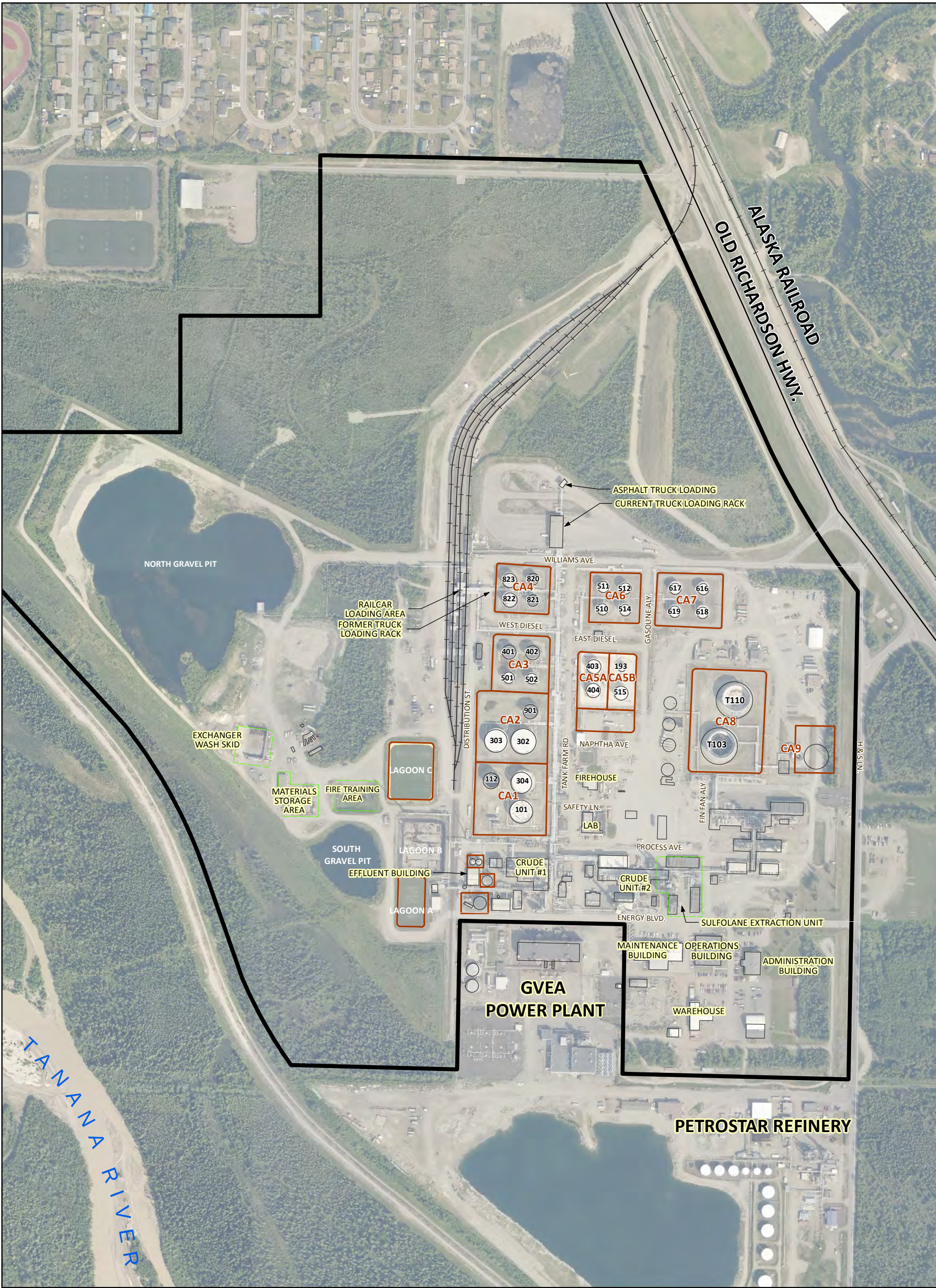


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SITE LOCATION



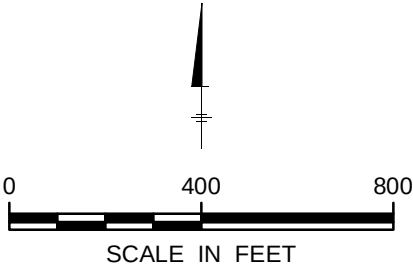
FIGURE
1-1



- Legend**
- Bermed Containment Areas (CA)
 - Approximate Area
 - FHRA Property Boundary

Notes:

GVEA: Golden Valley Electrical Authority
Image provided courtesy of Pictometry International 2012



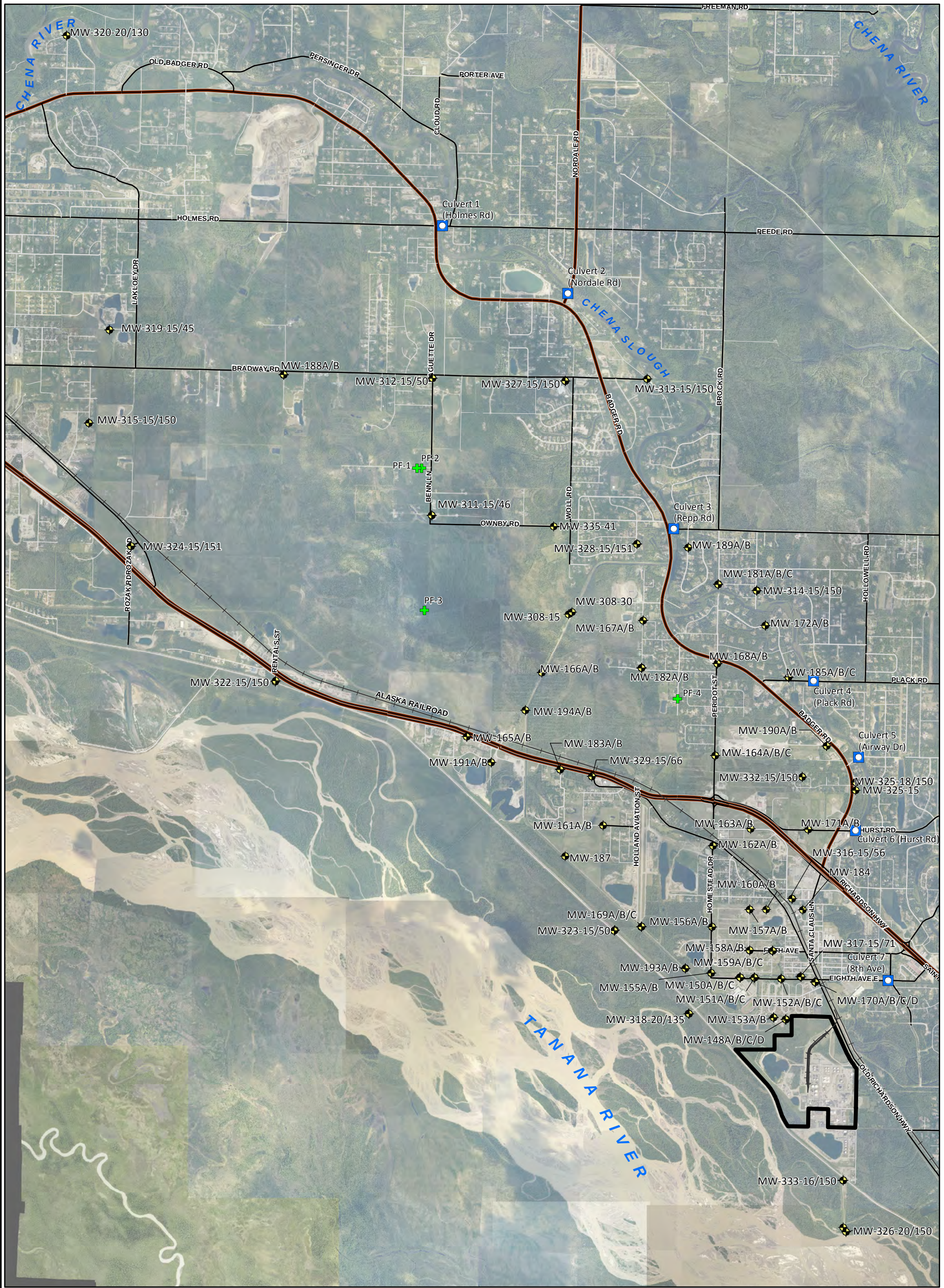
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SITE FEATURES



FIGURE
1-2

1-3

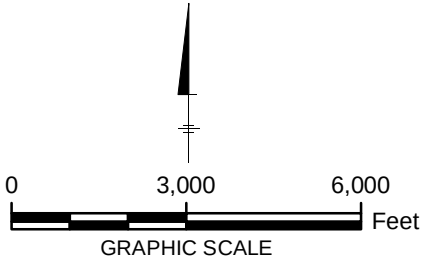


Legend:

Monitoring Well	Highway
Permafrost Boring	Major Road
Culvert	Local Road
FHRA Property Boundary	Rail Line

Note:

Image provided courtesy of Pictometry International 2012



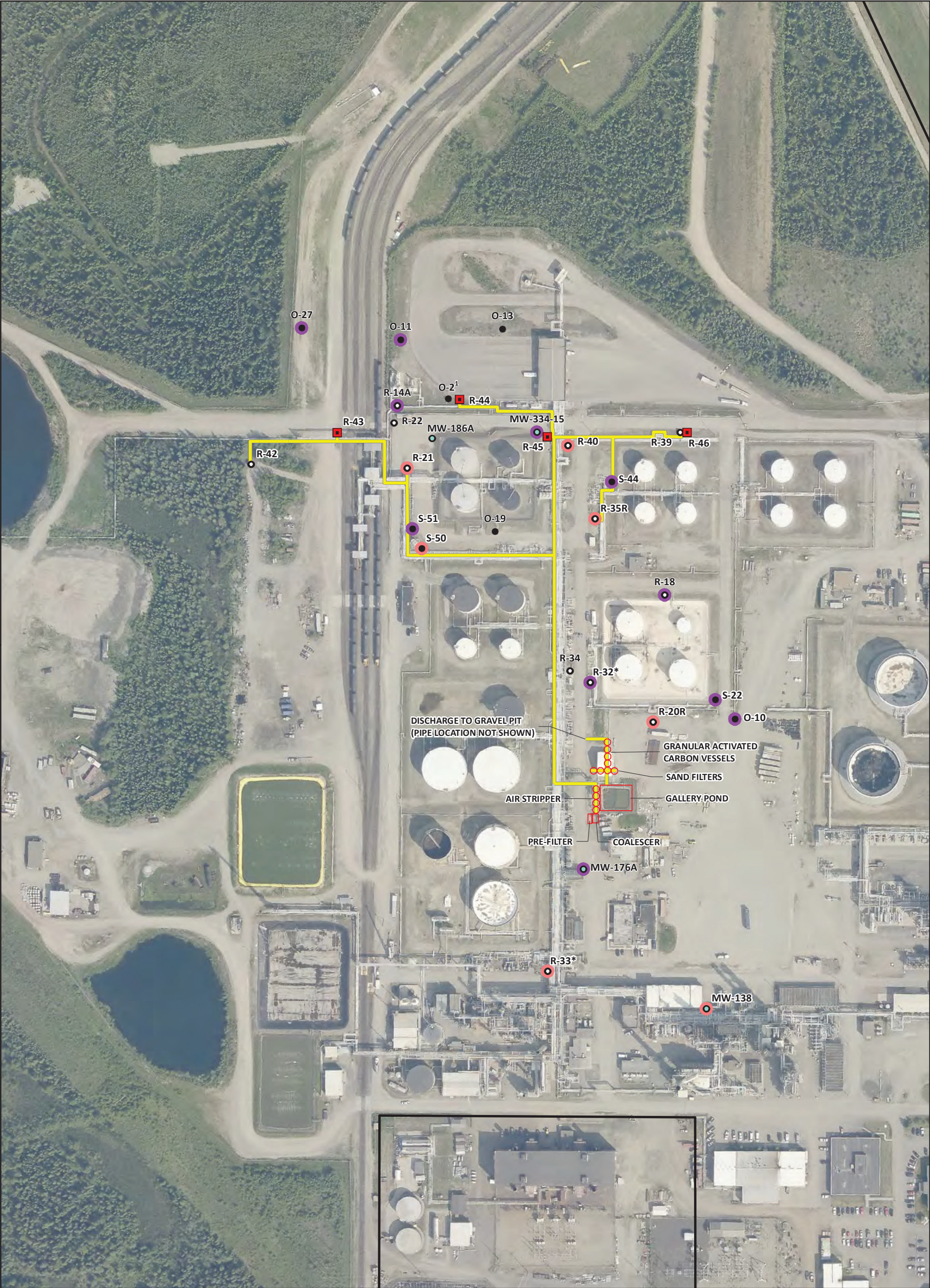
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SITE PLAN - OFFSITE

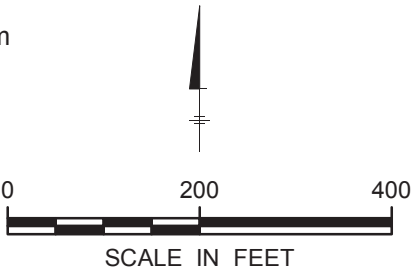
ARCADIS

FIGURE
1-4



- Legend**
- Monitoring Well
 - Observation Well
 - Recovery Well
 - New Recovery Wells
 - Installed Product Recovery System
 - Manual Product Recovery
 - Remediation System Piping
 - FHRA Property Boundary

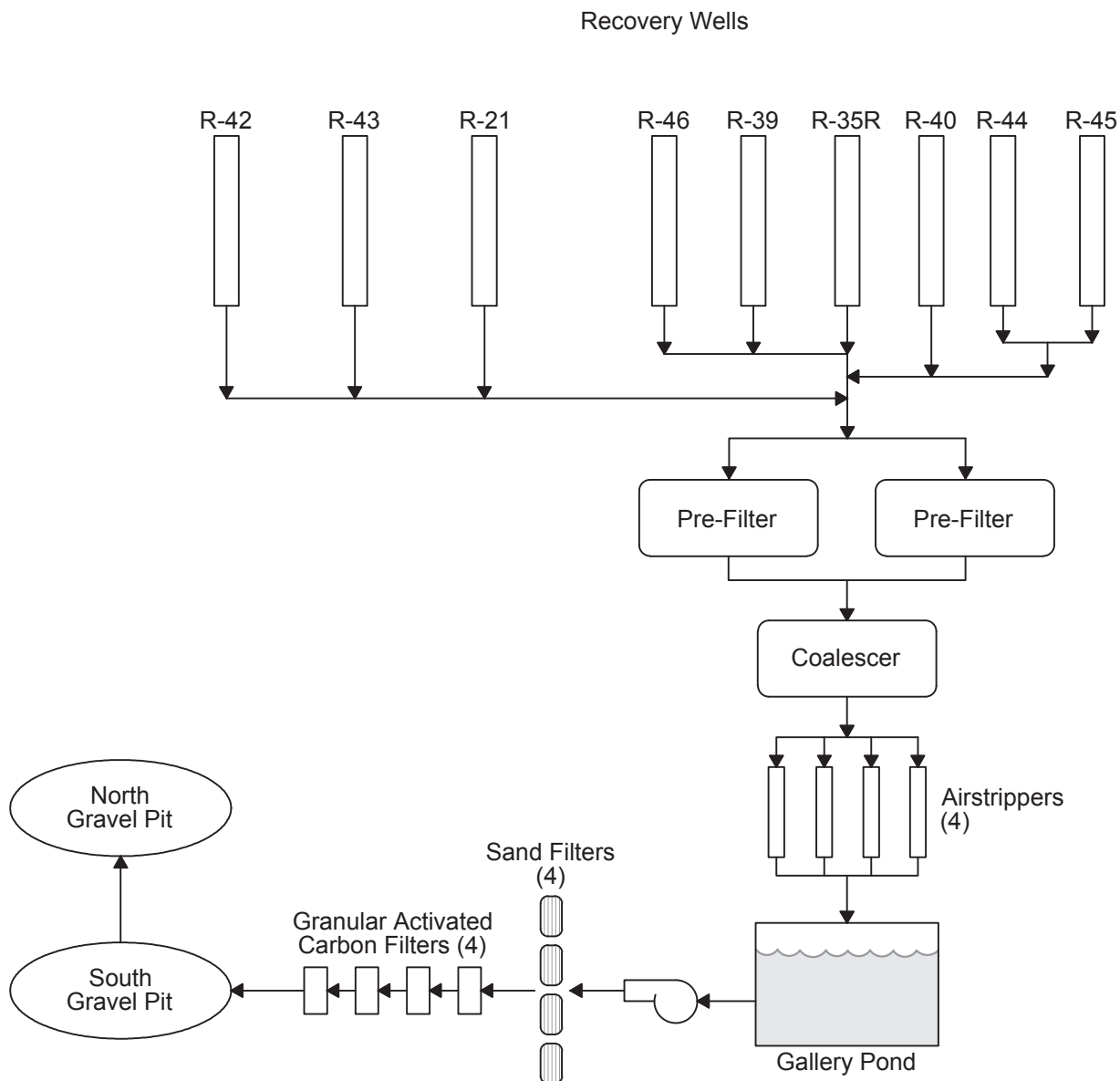
Notes:
*Product recovery systems installed in wells R-32 and R-33 are under evaluation.
Manual product recovery is completed with a vacuum truck or portable product pump.
Image provided courtesy of Pictometry International 2012
¹Manual product recovery. An installed product recovery system was previously used.



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**CURRENT GROUNDWATER RECOVERY
AND TREATMENT SYSTEM LAYOUT**





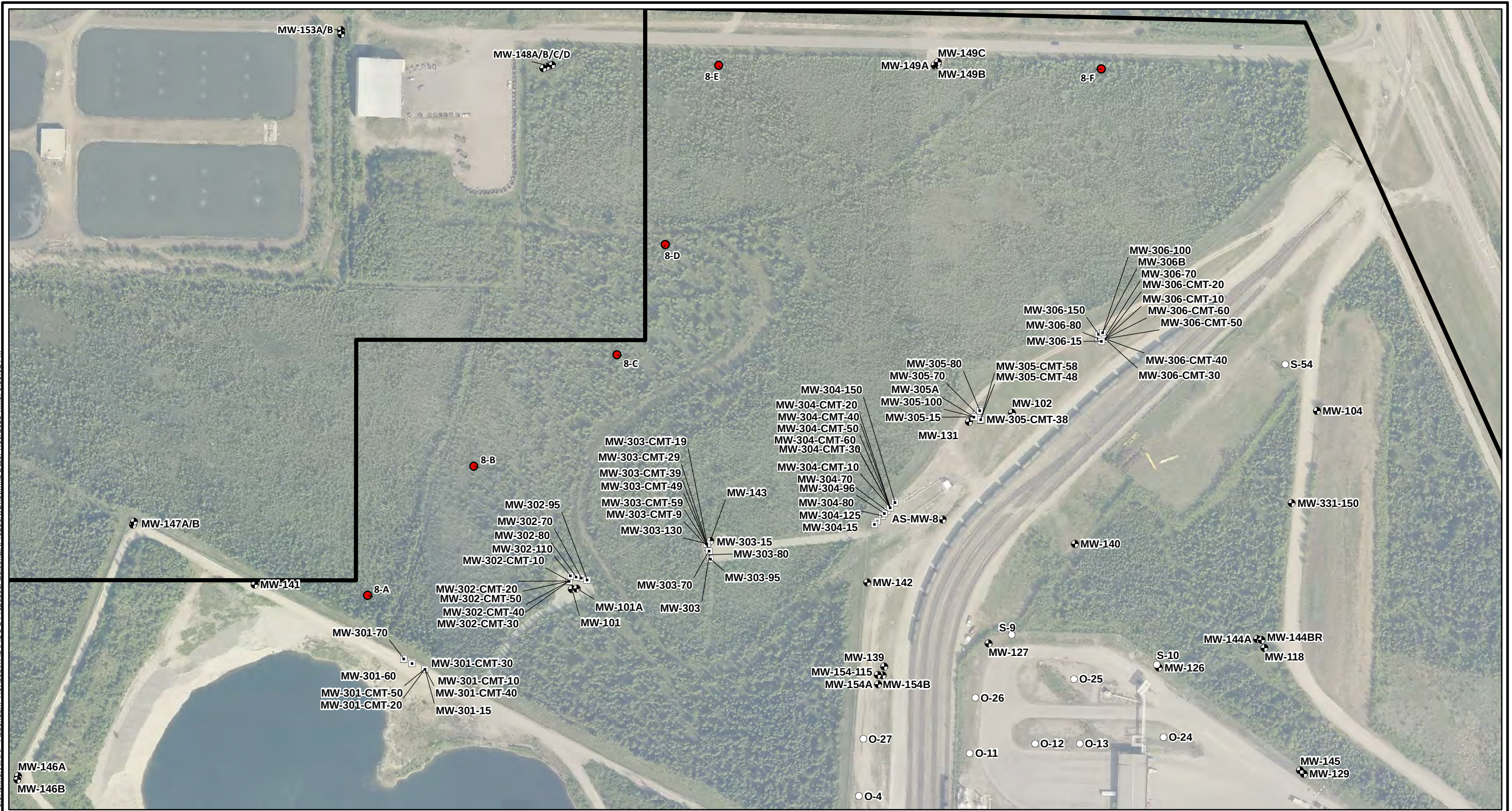
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CURRENT PROCESS FLOW DIAGRAM- GROUNDWATER CAPTURE AND TREATMENT SYSTEM



FIGURE
 2-2

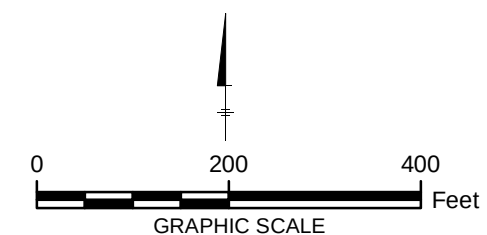


Legend:

-  Monitoring Well
-  Observation Well
-  Vertical Profile Transect Well
-  Approximate proposed well locations
-  FHRA Property Boundary

Note:
PF = Permafrost

Image provided courtesy of Pictometry International 2012



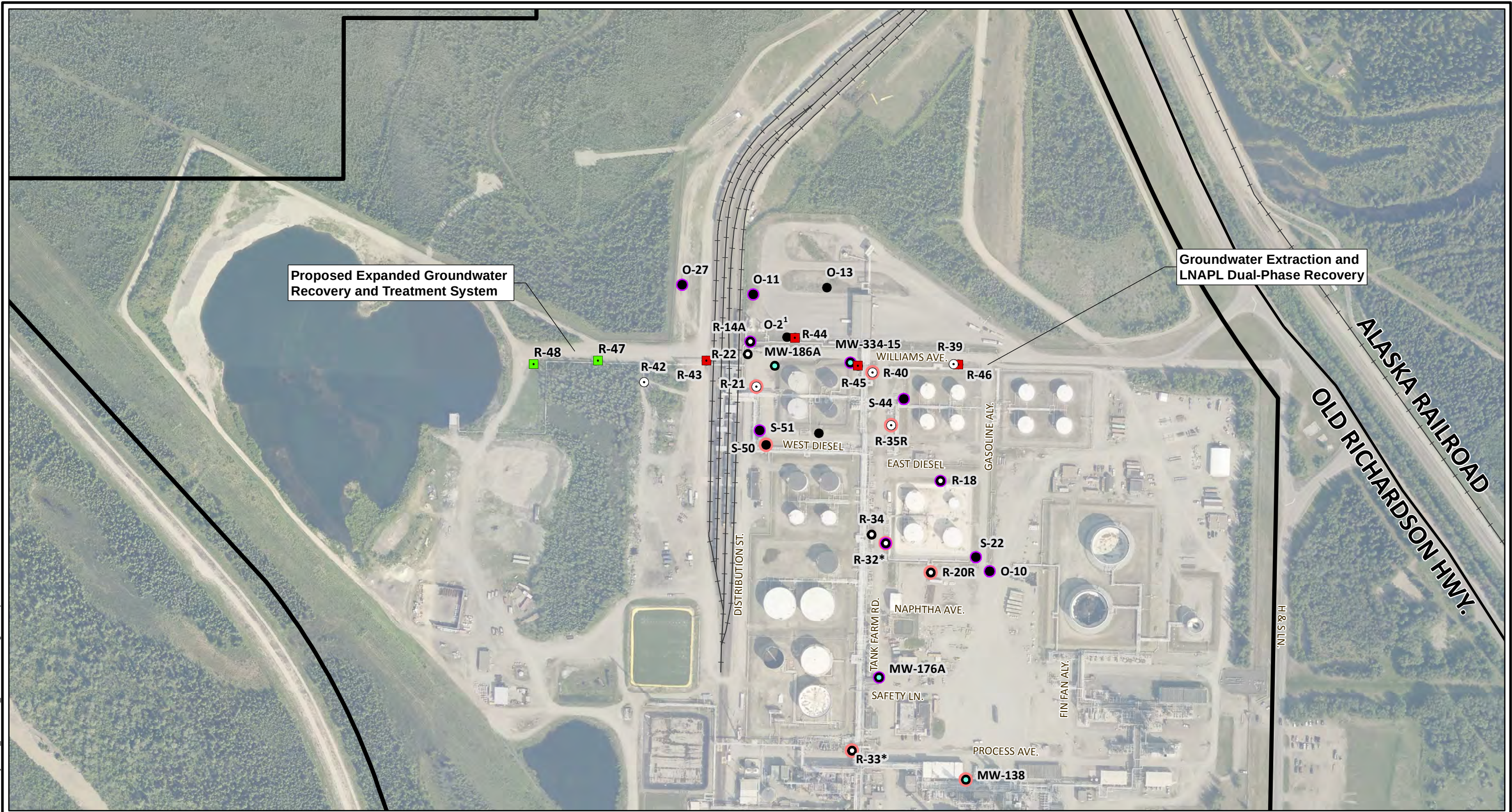
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PROPOSED ADDITIONAL NORTH PROPERTY BOUNDARY AND VPT MONITORING WELLS



FIGURE 3-1

CITY: SF DIV/GROUP: ENV/IM DB: K ERNST LD: G FRANCE PIC: PM: TM: TR:
Project (Project #) 0061981 (006100001)
Part: WIGSPROJECTS/ENV/HR AK/Flint Hills Refinery/IRAP Addendum Revised/MD/Efig 4-1 Proposed Remedial Actions.mxd Date: 7/30/2013 Time: 9:35:14 PM

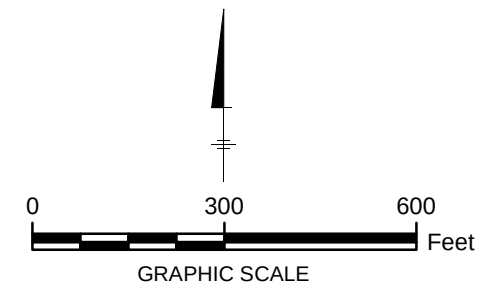


Legend:

- Monitoring Well
- Observation Well
- Recovery Well
- New Recovery Wells
- Proposed Recovery Wells
- Active Recovery Wells
- Manual Product Recovery
- Installed Product Recovery System
- FHRA Property Boundary

Notes:

*Product recovery systems installed in wells R-32 and R-33 are under evaluation.
Manual product recovery is completed with a vacuum truck or portable product pump.
*Manual product recovery. An installed product recovery system was previously used.
Image provided courtesy of Pictometry International 2012

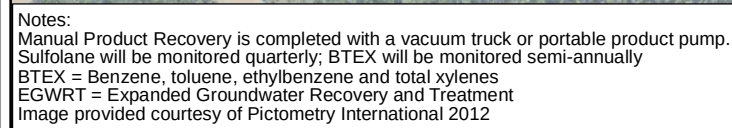


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REVISED IRAP ADDENDUM

PROPOSED REMEDIAL ACTIONS



FIGURE
4-1



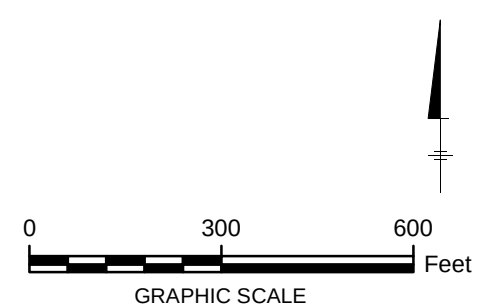
LEGEND:

WELL TYPES

-  EXISTING MONITORING WELL
 PROPOSED MONITORING WELL NESTS
 PROPOSED MONITORING WELL NESTS - EXISTING MONITORING LOCATIONS

GROUNDWATER EXTRACTION PERFORMANCE WELLS

-  UPGRADIENT MONITORING LOCATIONS
 MONITORING WELLS WITHIN THE TREATMENT ZONE
 DOWNGRAIDENT MONITORING LOCATIONS



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PERFORMANCE MONITORING WELL NETWORKS – SULFOLANE AND BTEX



FIGURE 4-2

CITY: SF DIV/GROUP: ENV/IM DB: K ERNST LD: G FRANCE PIC: PM: TM: TR:
Project (Project #) 0001091 0006.00001
Part: WIGSPROJECTS\ENVFHR AK\NorthPoleRefinery\IRAP Addendum Revised\MXD\Fig 4-3 PerformanceWellNetwork HydraulicCapture.mxd Date: 7/30/2013 Time: 9:34:33 PM

