



November 20, 2015  
Cardno 031227CX.LR10

Aaron Thom  
ExxonMobil Environmental Services Company  
Attn: North Torrance Office  
3700 West 190<sup>th</sup> Street NTO #1106  
Torrance, California 90504

**SUBJECT**     **System Installation Report**  
Grant County Airport  
Former Fueling Facilities  
7810 Andrews Street Northeast  
Moses Lake, Washington

Cardno

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Mr. Thom:

At the request of ExxonMobil Environmental Services Company (EMES), on behalf of ExxonMobil Oil Corporation, Cardno has prepared the enclosed *System Installation Report* documenting the installation of a non-aqueous phase liquid recovery system at the subject site.

Please contact Mr. Michael J. Miller, Cardno Project Manager for this site, at 206 767 2360 with any questions.

Sincerely,

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On behalf of:

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**ENCLOSURE**

Cardno's ExxonMobil Environmental Services Company *System Installation Report*, dated November 20, 2015

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Mr. Thom:

At the request of ExxonMobil Environmental Services Company (EMES), on behalf of ExxonMobil Oil Corporation, Cardno has prepared this report to document the installation of a NAPL recovery system at the subject site. The scope of work included:

- Trenching from the XITECH controller located in Pumphouse #1 to NAPL extraction wells MW15, MW21, MW22, MW25, and MW26;
- Installation of the XITECH NAPL recovery system controller;
- Installation of a 220-gallon NAPL recovery holding tank with secondary containment enclosure; and
- Installation of pneumatic well pumps in NAPL extraction wells MW15, MW21, MW22, MW25, and MW26.

## **SITE DESCRIPTION**

Grant County Airport is located immediately north of the City of Moses Lake in Grant County, Washington. The site lies at an elevation of approximately 1,170 feet above msl (Plate 1). Former ExxonMobil-leased facilities include fueling hydrants located in the southern portion of the airport, two aboveground storage tanks (ASTs) (Storage Tank #38 and #24, with capacities of 54,390 barrels (bbl) and 27,426 bbl, respectively) located south of the airport, and associated product piping runs, all of which have historically been used to dispense jet fuel. A generalized site plan for Pumphouse #1 is shown on Plate 2.

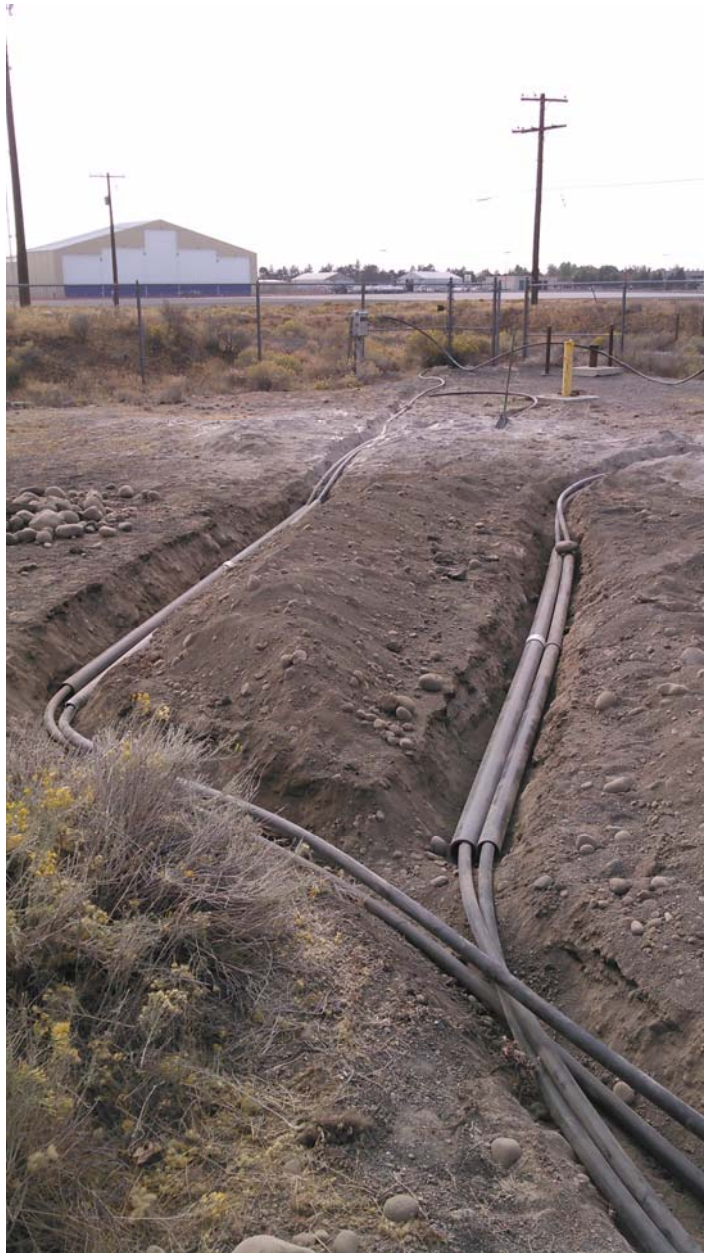
## **NAPL RECOVERY SYSTEM INSTALLATION**

On September 29, 2015, the Xitech Instruments, Inc. (Xitech) controller box, holding tank, and secondary containment for the holding tank were installed in Pumphouse #1. A licensed electrician installed power outlets for the Xitech controller and exhaust fan. The electrician also wired the emergency shutoff switches for the high level alarms in the NAPL holding tank and secondary containment.

On September 30, 2015, the trenching activities to connect the NAPL return and air supply lines to Pumphouse #1 and NAPL Recovery Wells MW21, MW22, MW25, and MW26 was completed.

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On October 1 and 2, 2015 the high-density polyethylene (HDPE) secondary containment line was installed in the trenches between the NAPL recovery wells and 220-gallon NAPL holding tank. NAPL recovery well MW26 is located on the other side of an airport access road. An existing conduit, located at the southwest corner of the fence line, passes beneath the access road. The conduit was used to run the NAPL return and air supply lines contained within the secondary containment to the other side of the road.

On October 5, 2015, a ventilation line for the NAPL holding tank was installed to allow ventilation from the interstitial space of the NAPL holding tank to an exhaust vent 2 feet above the roof line of Pumphouse #1. The NAPL return and air supply lines were run through the secondary containment between Pumphouse #1 and wells MW21 and MW26.

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On October 6, 2015, the NAPL return and air supply lines were connected to MW15, MW22, and MW25.

On October 7, 2015, a manifold was installed on the NAPL holding tank to connect to the 5 NAPL return lines. The air supply lines were run through pumphouse #1 from the NAPL holding tank to the Xitech controller box.





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On October 8, 2015, the pneumatic well pumps were installed in the NAPL recovery wells. Upon placing each pneumatic pump in the well, a pump test was conducted to observe the drawdown of NAPL for each well. The pump test data was used to program the Xitech controller and the recovery of NAPL from each NAPL recovery well.



On October 9, 2015, the Xitech controller was programmed and operation of the system was initiated.

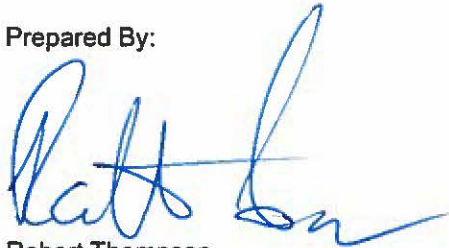
November 20, 2015  
Cardno 031227CX.R10 Grant County Airport, Former Fueling Facilities, Moses Lake, Washington

## ENCLOSURES

### Acronym List


Plate 1 Site Location Map  
Plate 2 Generalized Site Plan (Pumphouse #1)  
Plate 3 Trenching Location Map (Pumphouse #1)  
Plate 4 Process & Instrumentation Diagram

Prepared By:



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Reviewed By:



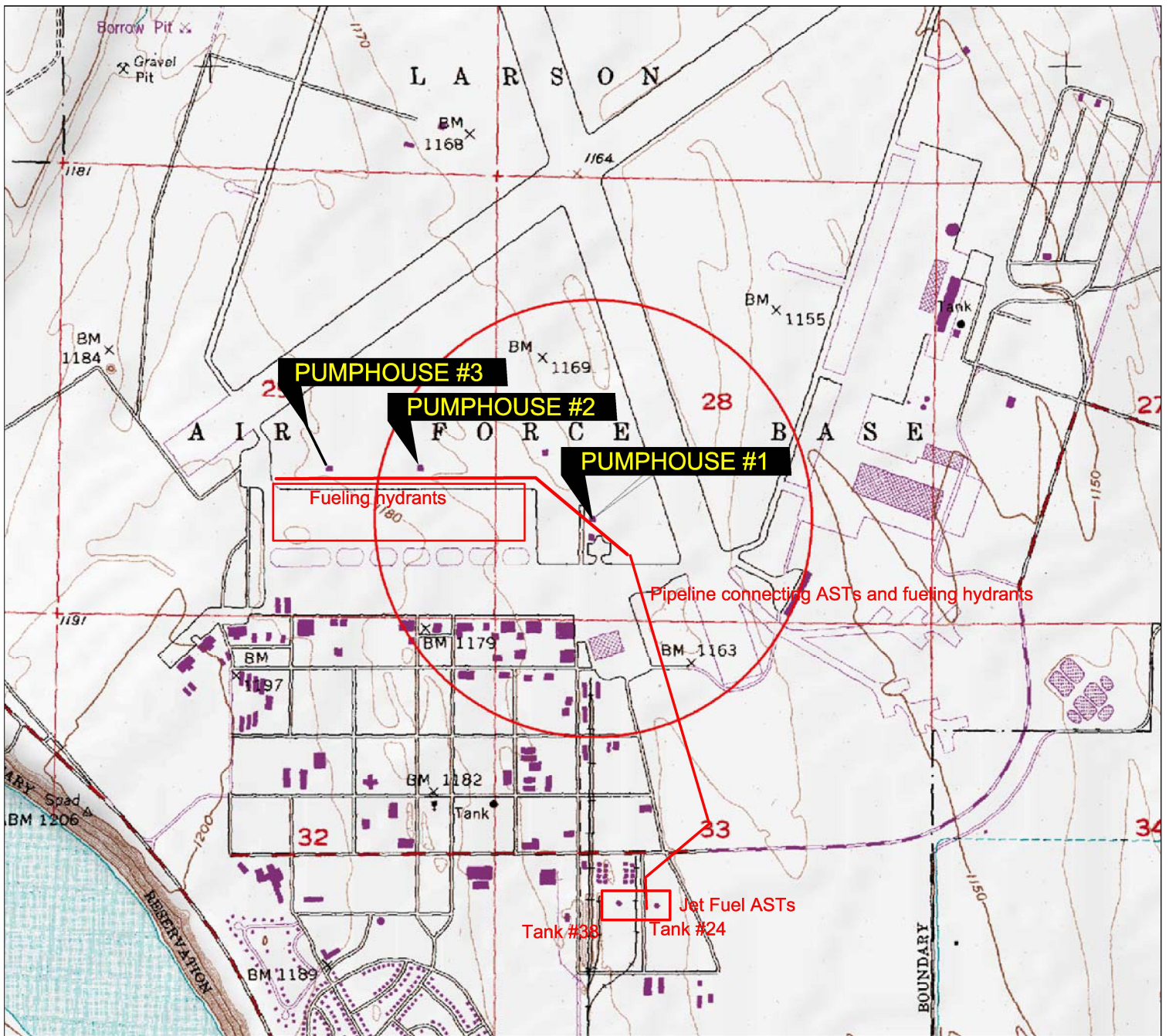
On behalf of:

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## Acronym List

µg/L	Micrograms per liter	NAPL	Non-aqueous phase liquid
µs	Microsiemens	NEPA	National Environmental Policy Act
1,2-DCA	1,2-dichloroethane	NGVD	National Geodetic Vertical Datum
acfm	Actual cubic feet per minute	NPDES	National Pollutant Discharge Elimination System
AS	Air sparge	O&M	Operations and Maintenance
bgs	Below ground surface	ORP	Oxidation-reduction potential
BTEX	Benzene, toluene, ethylbenzene, and total xylenes	OSHA	Occupational Safety and Health Administration
CEQA	California Environmental Quality Act	OVA	Organic vapor analyzer
cfm	Cubic feet per minute	P&ID	Process & Instrumentation Diagram
COC	Chain of Custody	PAH	Polycyclic aromatic hydrocarbon
CPT	Cone Penetration (Penetrometer) Test	PCB	Polychlorinated biphenyl
DIPE	Di-isopropyl ether	PCE	Tetrachloroethene or perchloroethylene
DO	Dissolved oxygen	PID	Photo-ionization detector
DOT	Department of Transportation	PLC	Programmable logic control
DPE	Dual-phase extraction	POTW	Publicly owned treatment works
DTW	Depth to water	ppmv	Parts per million by volume
EDB	1,2-dibromoethane	PQL	Practical quantitation limit
EDC	1,2-dichloroethane	psi	Pounds per square inch
EPA	Environmental Protection Agency	PVC	Polyvinyl chloride
ESL	Environmental screening level	QA/QC	Quality assurance/quality control
ETBE	Ethyl tertiary butyl ether	RBSL	Risk-based screening levels
FID	Flame-ionization detector	RCRA	Resource Conservation and Recovery Act
fpm	Feet per minute	RL	Reporting limit
GAC	Granular activated carbon	scfm	Standard cubic feet per minute
gpd	Gallons per day	SSTL	Site-specific target level
gpm	Gallons per minute	STLC	Soluble threshold limit concentration
GWPTS	Groundwater pump and treat system	SVE	Soil vapor extraction
HVOC	Halogenated volatile organic compound	SVOC	Semivolatile organic compound
J	Estimated value between MDL and PQL (RL)	TAME	Tertiary amyl methyl ether
LEL	Lower explosive limit	TBA	Tertiary butyl alcohol
LPC	Liquid-phase carbon	TCE	Trichloroethene
LRP	Liquid-ring pump	TOC	Top of well casing elevation; datum is msl
LUFT	Leaking underground fuel tank	TOG	Total oil and grease
LUST	Leaking underground storage tank	TPHd	Total hydrocarbons as diesel
MCL	Maximum contaminant level	TPHg	Total hydrocarbons as gasoline
MDL	Method detection limit	TPHmo	Total hydrocarbons as motor oil
mg/kg	Milligrams per kilogram	TPHs	Total hydrocarbons as stoddard solvent
mg/L	Milligrams per liter	TRPH	Total recoverable hydrocarbons
mg/m <sup>3</sup>	Milligrams per cubic meter	UCL	Upper confidence level
MPE	Multi-phase extraction	USCS	Unified Soil Classification System
MRL	Method reporting limit	USGS	United States Geologic Survey
msl	Mean sea level	UST	Underground storage tank
MTBE	Methyl tertiary butyl ether	VCP	Voluntary Cleanup Program
MTCA	Model Toxics Control Act	VOC	Volatile organic compound
NAI	Natural attenuation indicators	VPC	Vapor-phase carbon





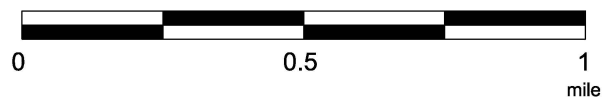
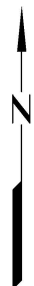
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**EXPLANATION**

○ 1/2-mile Radius Circle From Pumphouse #1

**APPROXIMATE SCALE**



SOURCE:  
 Modified from a map  
 provided by  
 DeLorme 3-D TopoQuads



**SITE LOCATION MAP**

GRANT COUNTY AIRPORT  
 FORMER FUELING FACILITIES  
 7810 Andrews Street Northeast  
 Moses Lake, Washington

**PROJECT NO.**

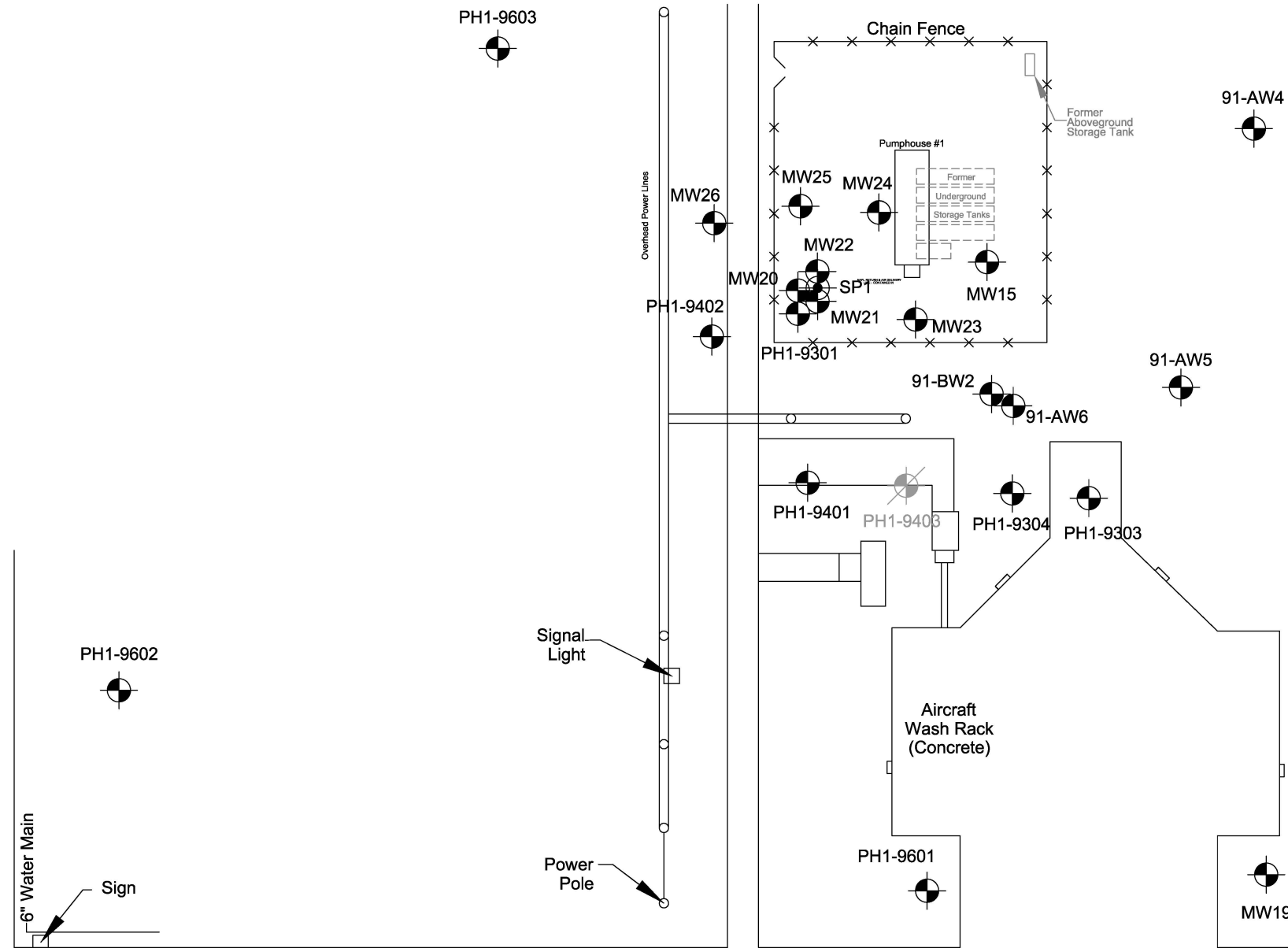
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**PLATE**

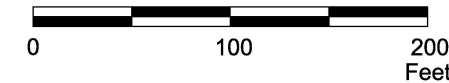
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NAG: 01/12/12





APPROXIMATE SCALE



SOURCE:  
Modified from a map provided by  
Secor International Inc.

FN 0312270002

**GENERALIZED SITE PLAN  
(PUMPHOUSE #1)**  
GRANT COUNTY AIRPORT  
FORMER FUELING FACILITIES  
7810 Andrews Street Northeast  
Moses Lake, Washington

**EXPLANATION**

- PH1-9603 Groundwater Monitoring Well
- PH1-9403 Destroyed Groundwater Monitoring Well

**PROJECT NO.**

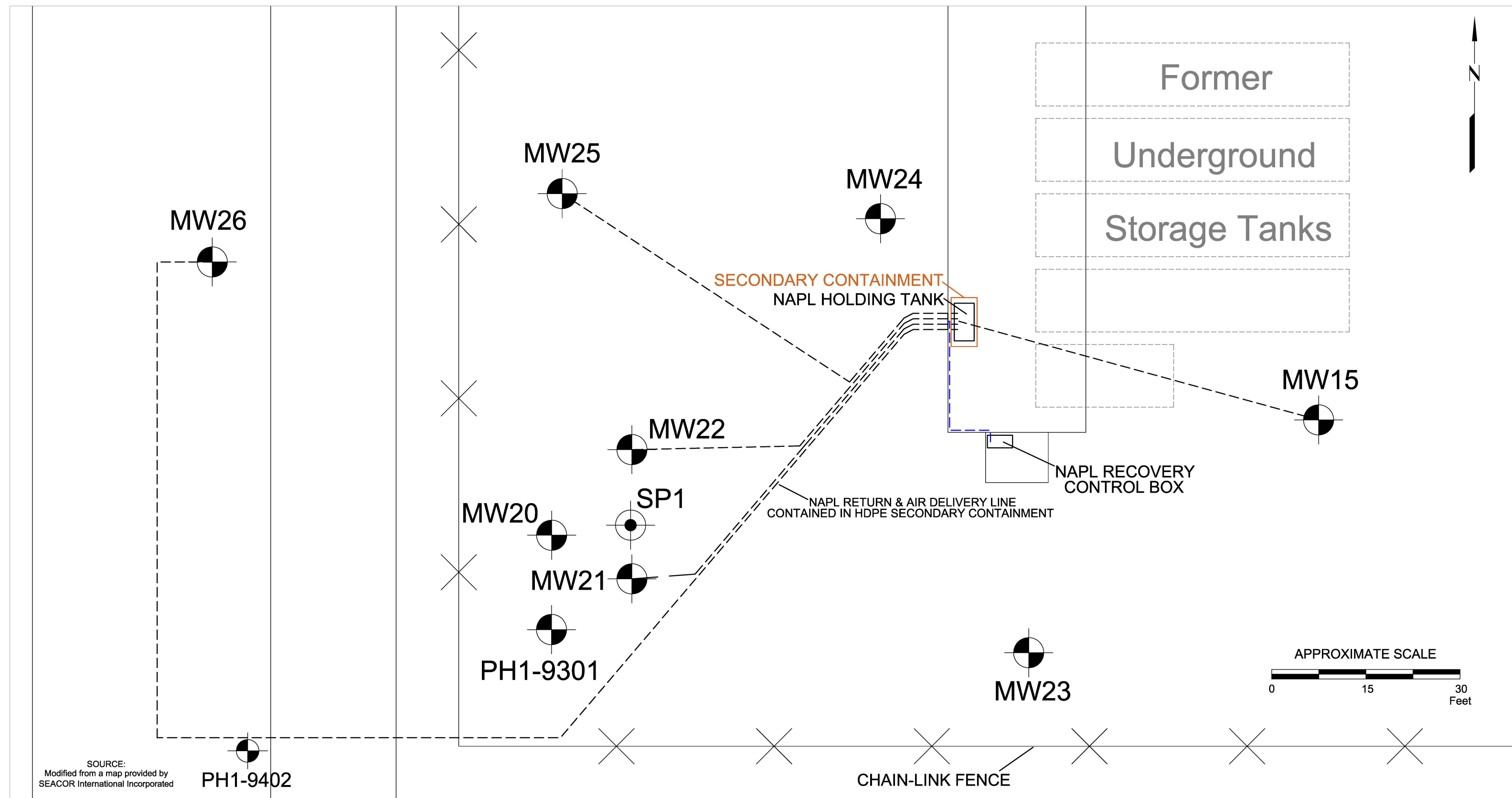
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**PLATE**

2

EJB: 07/01/13





SOURCE:  
Modified from a map provided by  
SEACOR International Incorporated

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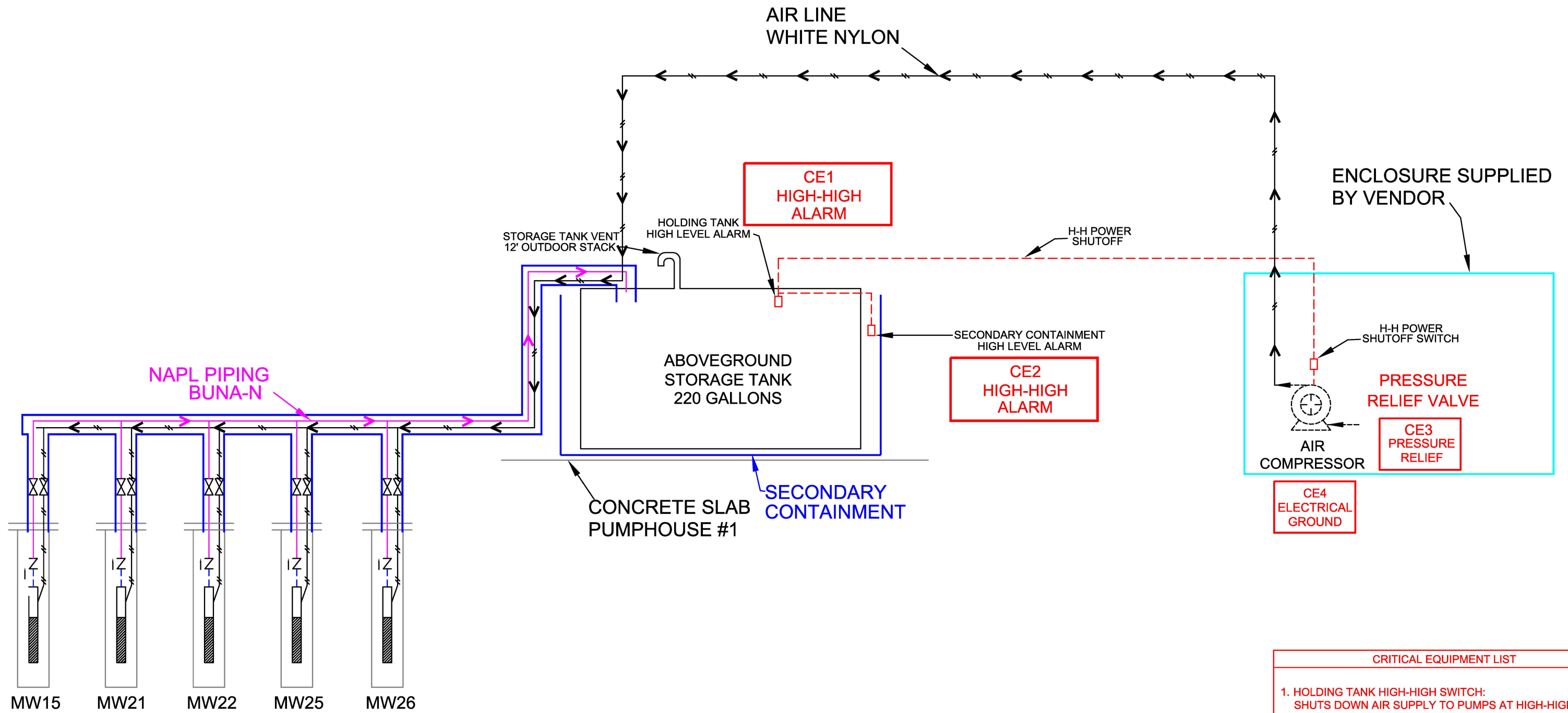
**REMEDIATION SYSTEM  
TRENCHING MAP (PUMPHOUSE #1)**  
GRANT COUNTY AIRPORT  
FORMER FUELING FACILITIES  
7810 Andrews Street Northeast  
Moses Lake, Washington

- EXPLANATION**
- PH1-9402
  - Groundwater Monitoring Well
  - Steam Injection Well
  - Redemption System Air Supply
  - Redemption System Air Supply and NAPL Return Piping

**PROJECT NO.**  
031227

**PLATE**  
3

RRT: 11/02/15



EXISTING NAPL EXTRACTION WELLS WITH NEW PNEUMATIC WELL PUMPS VENDOR SUPPLIED PACKAGE

- | CRITICAL EQUIPMENT LIST |   |
|-------------------------|---|
| 1.                      | HOLDING TANK HIGH-HIGH SWITCH: SHUTS DOWN AIR SUPPLY TO PUMPS AT HIGH-HIGH LEVEL IN HOLDING TANK          |
| 2.                      | SECONDARY CONTAINMENT HIGH-HIGH SWITCH: SHUTS DOWN AIR SUPPLY TO PUMPS AT HIGH-HIGH LEVEL IN HOLDING TANK |
| 3.                      | AIR COMPRESSOR PRESSURE RELIEF VALVE: OPENS AT HIGH PRESSURE IN AIR COMPRESSOR                            |
| 4.                      | ELECTRICAL GROUND: ENSURES PROPER ELECTRICAL GROUND   |
- CRITICAL EQUIPMENT ITEMS ARE IDENTIFIED WITH BRASS TAG.

Sheet No. 4	Project REMEDATION SYSTEM GRANT COUNTY AIRPORT FORMER FUELING FACILITIES 7810 Andrews Street Northeast Moses Lake, Washington	Drawing <b>PROCESS &amp; INSTRUMENTATION DIAGRAM</b>	Diagram P-4	
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