

# BNSF RAILWAY FORMER TIE TREATING PLANT SOMERS, MONTANA

USEPA Region 8 Montana Office  
Montana DEQ

Thursday, September 20, 2012  
Somers Fire Hall

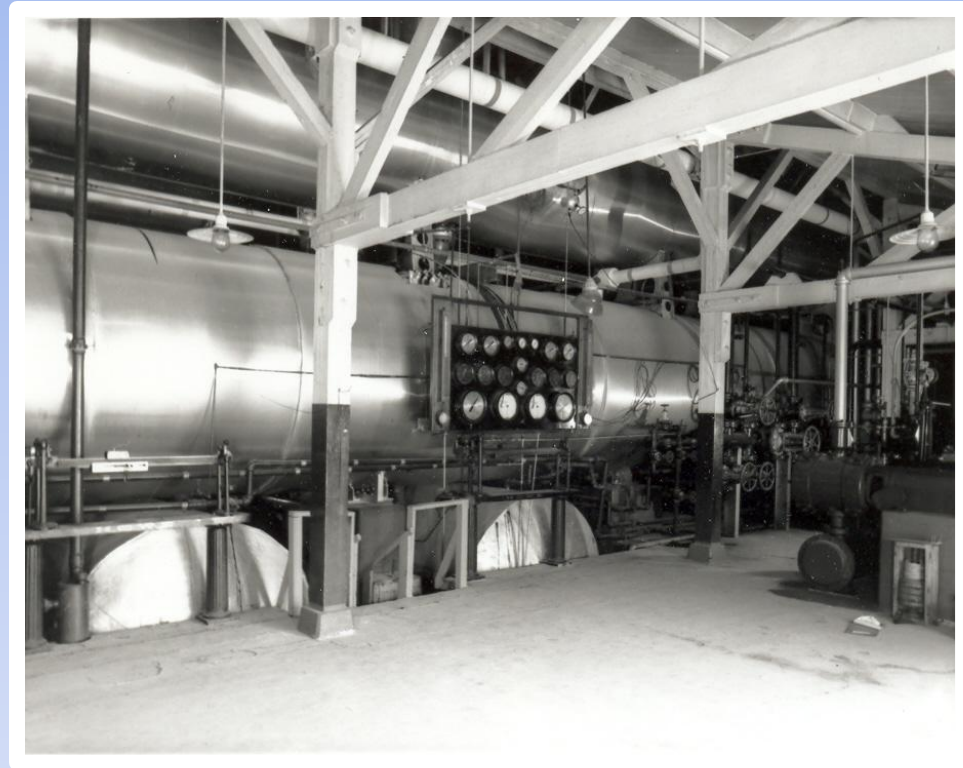


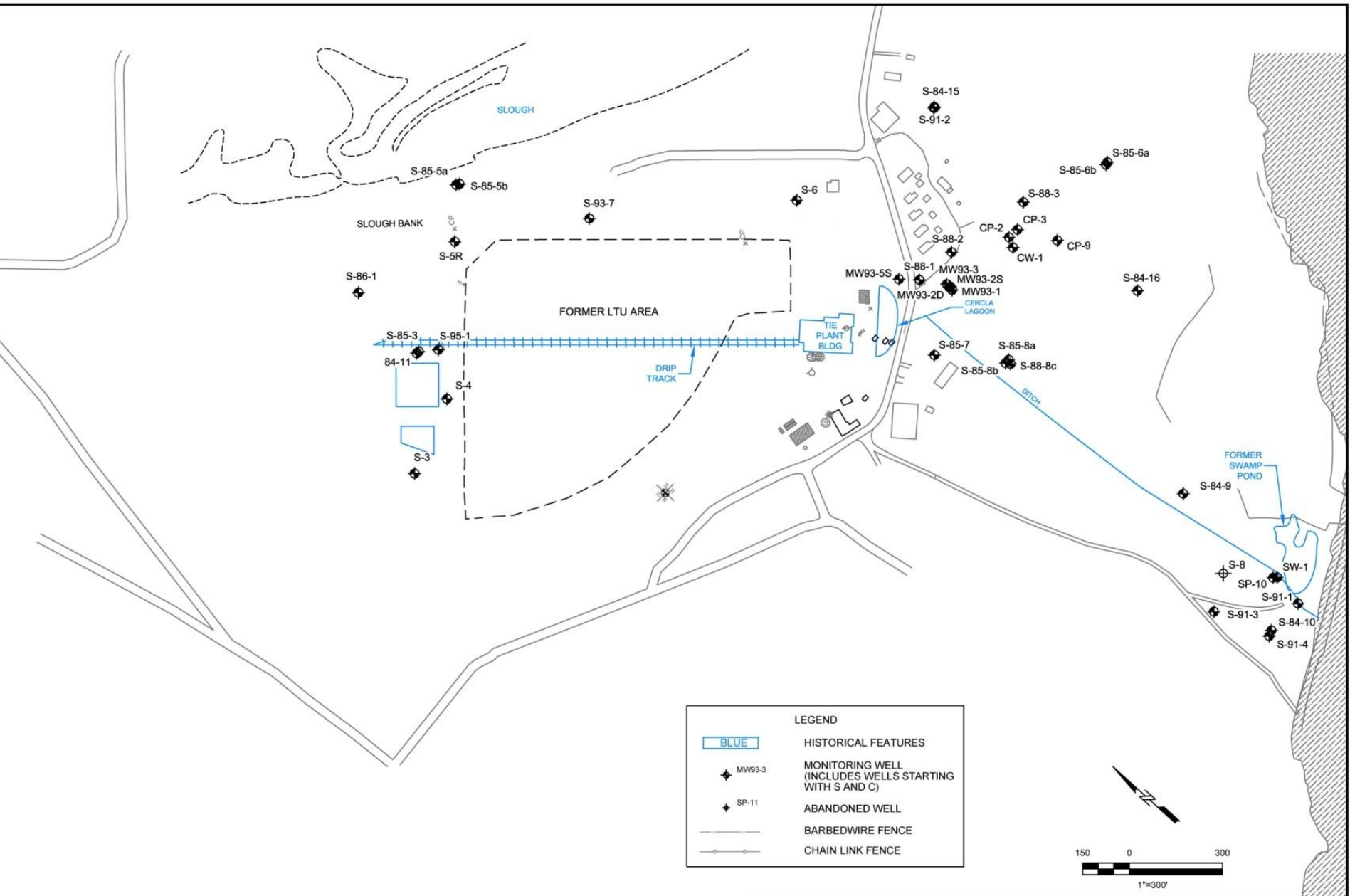
# Tonight's Meeting

- ❑ Welcome and Introductions
- ❑ Agenda
  - ❑ Brief History of the BNSF Former Tie Treating Plant Site
  - ❑ Fourth Five Year Review of the Site Remedy
  - ❑ Groundwater Investigations
  - ❑ Vapor Intrusion Screening
  - ❑ Next Steps

# Somers Tie Plant - History

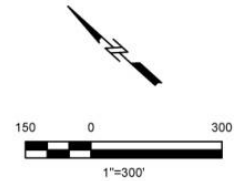
- BNSF operated the Somers Tie Plant 1901 to 1986
- Treated railroad ties and other lumber products
- Wastewater was generated during the treatment process
- Site was proposed for inclusion on the Superfund National Priorities List (NPL) in 1984 – EPA withdrew proposal in 1991





**LEGEND**

- BLUE HISTORICAL FEATURES
- MW93-3 MONITORING WELL (INCLUDES WELLS STARTING WITH S AND C)
- SP-11 ABANDONED WELL
- BARBEDWIRE FENCE
- CHAIN LINK FENCE



Request to Modify Groundwater Treatment System BNSF, Somers, Montana (01140176-241)		<b>HISTORICAL SITE FEATURES AND STRUCTURES</b>
DATE: 03/13/08	DRWN: E.S.S./DEN	<b>FIGURE 2-2</b>

# 1989 Record of Decision – Soil Remedy

- Excavation - 1993

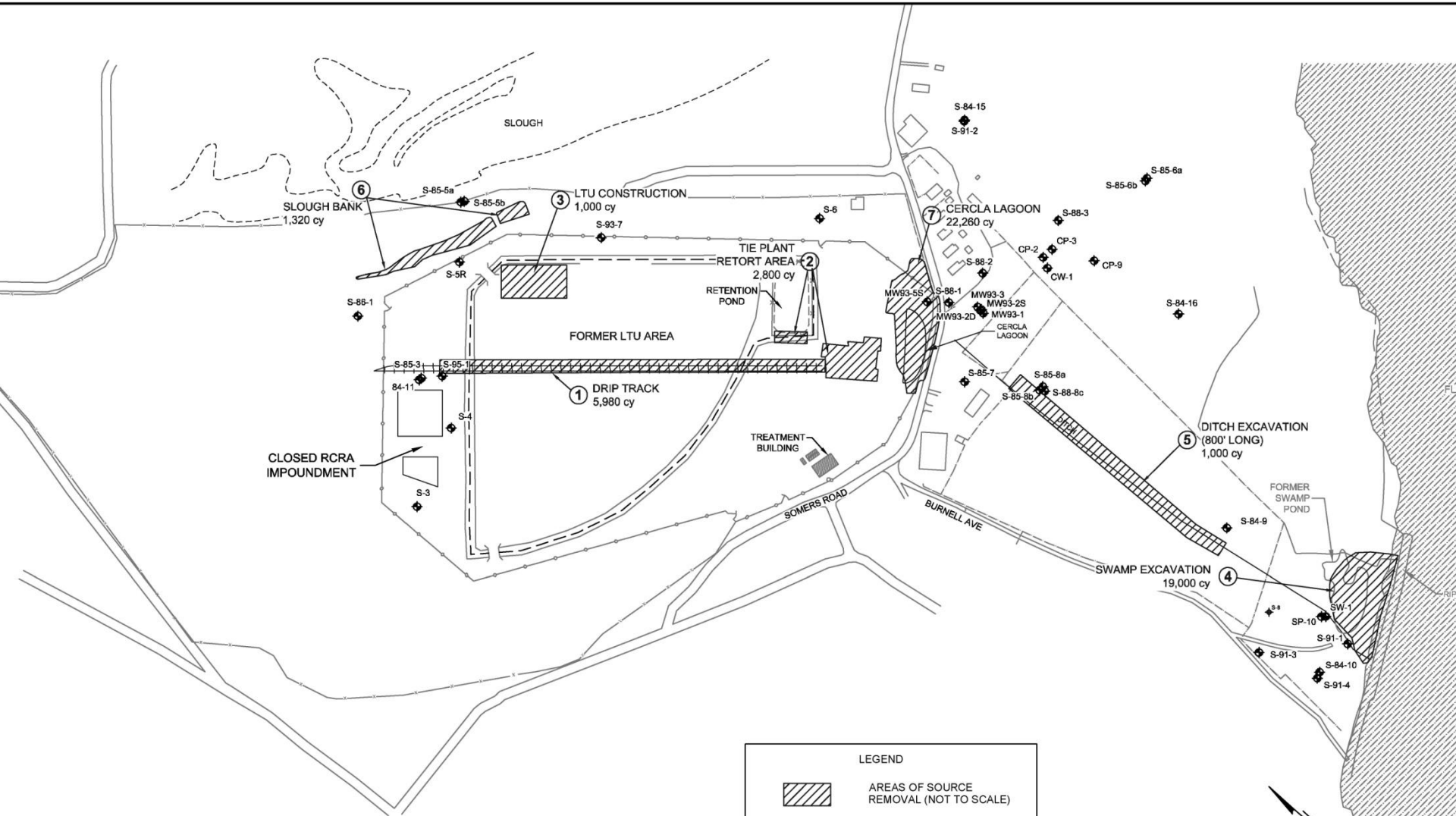
Drip track    Rertort building    CERCLA lagoon  
Drainage ditch    Slough bank    Swamp pond

- Land Treatment Unit





Constructed 1992-1993    Treatment begins 1994  
Completion/Closed 2002

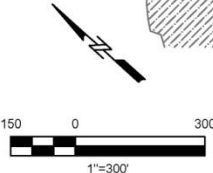
- Backfill and revegetate excavated areas

- Wetland mitigation/restoration




**LEGEND**

-  AREAS OF SOURCE REMOVAL (NOT TO SCALE)
-  MW93-3  
MONITORING WELL (INCLUDES WELLS STARTING WITH S AND C)
-  BARBED WIRE FENCE
-  CHAIN LINK FENCE





# 1989 ROD - Groundwater Remedy

- 
- ❑ In situ biological treatment and hot water flushing within water table aquifer
  - ❑ 1992 , 1998 changes to the ROD
  - ❑ Installed injection and recovery wells
  - ❑ Groundwater Treatment System (GWTS) operates from 1994-2007



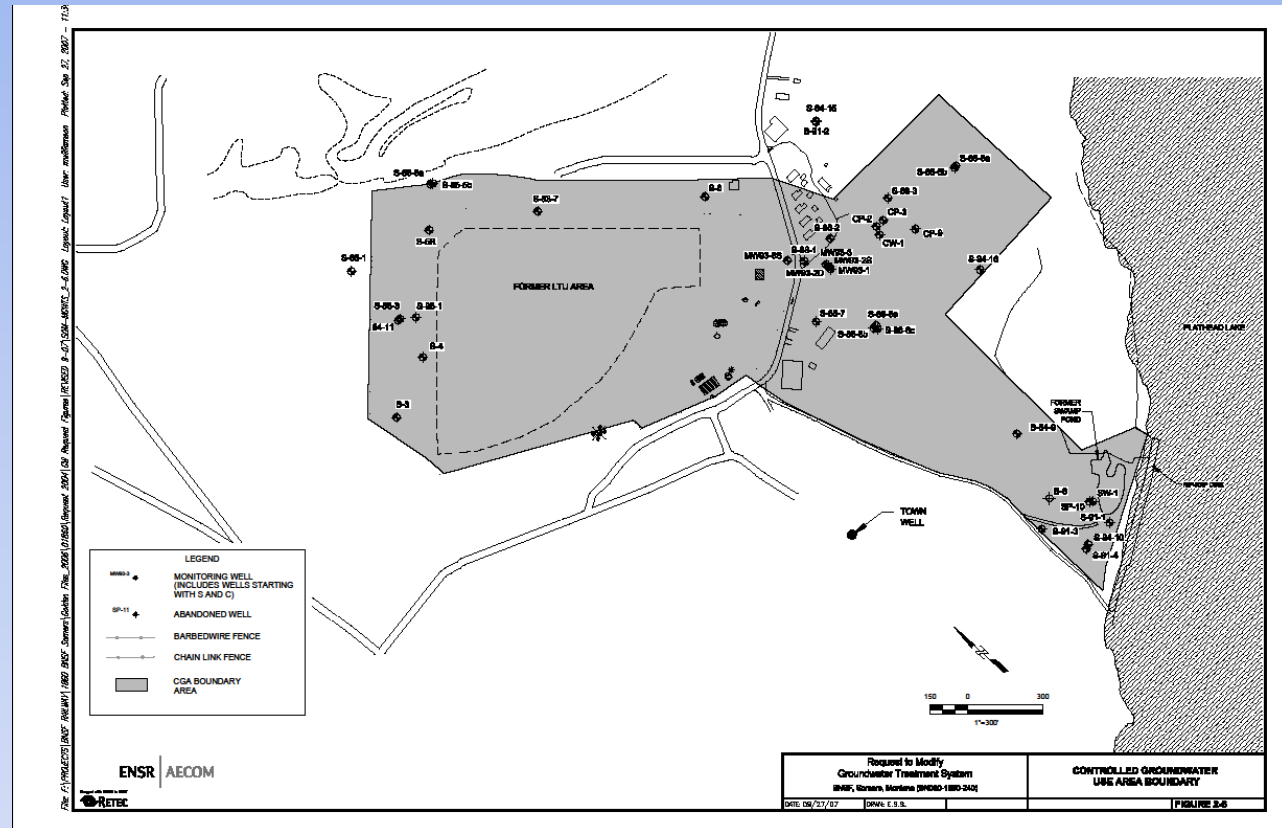
# Groundwater Remedy Implementation

- 2003 Controlled Groundwater Area established
- 2007 Interim GWTS shut-down
- Groundwater monitoring required by Agencies to evaluate effect of shut-down on resources



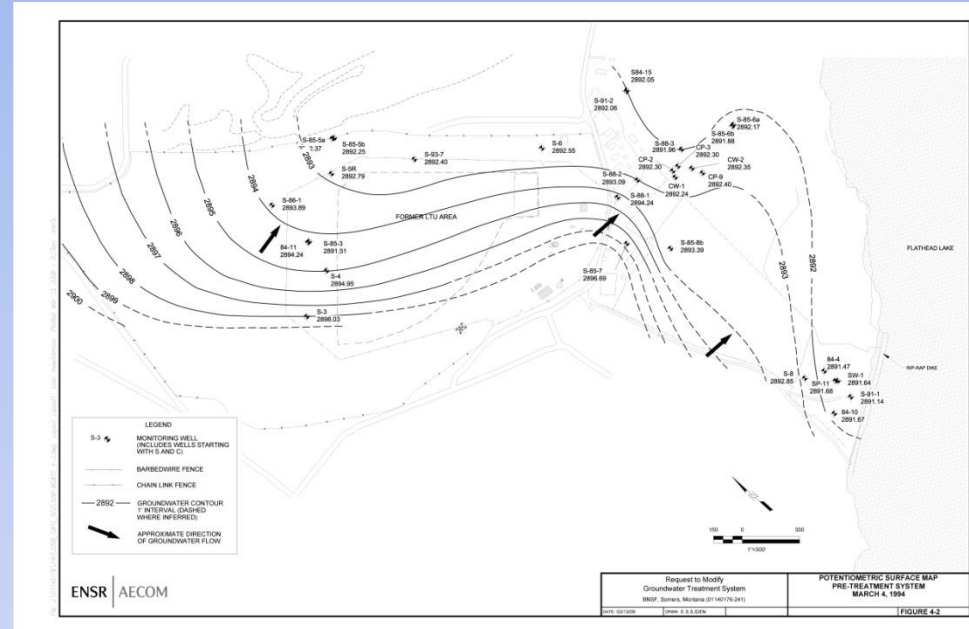
# Following the GWTS Shut-down

- 2009 and 2010 monitoring data
  - ▣ Levels exceed ROD cleanup levels
  - ▣ Extend beyond boundary of Controlled Groundwater Area boundary
- EPA and DEQ require BNSF to conduct additional groundwater investigations



# Groundwater Investigation Objectives

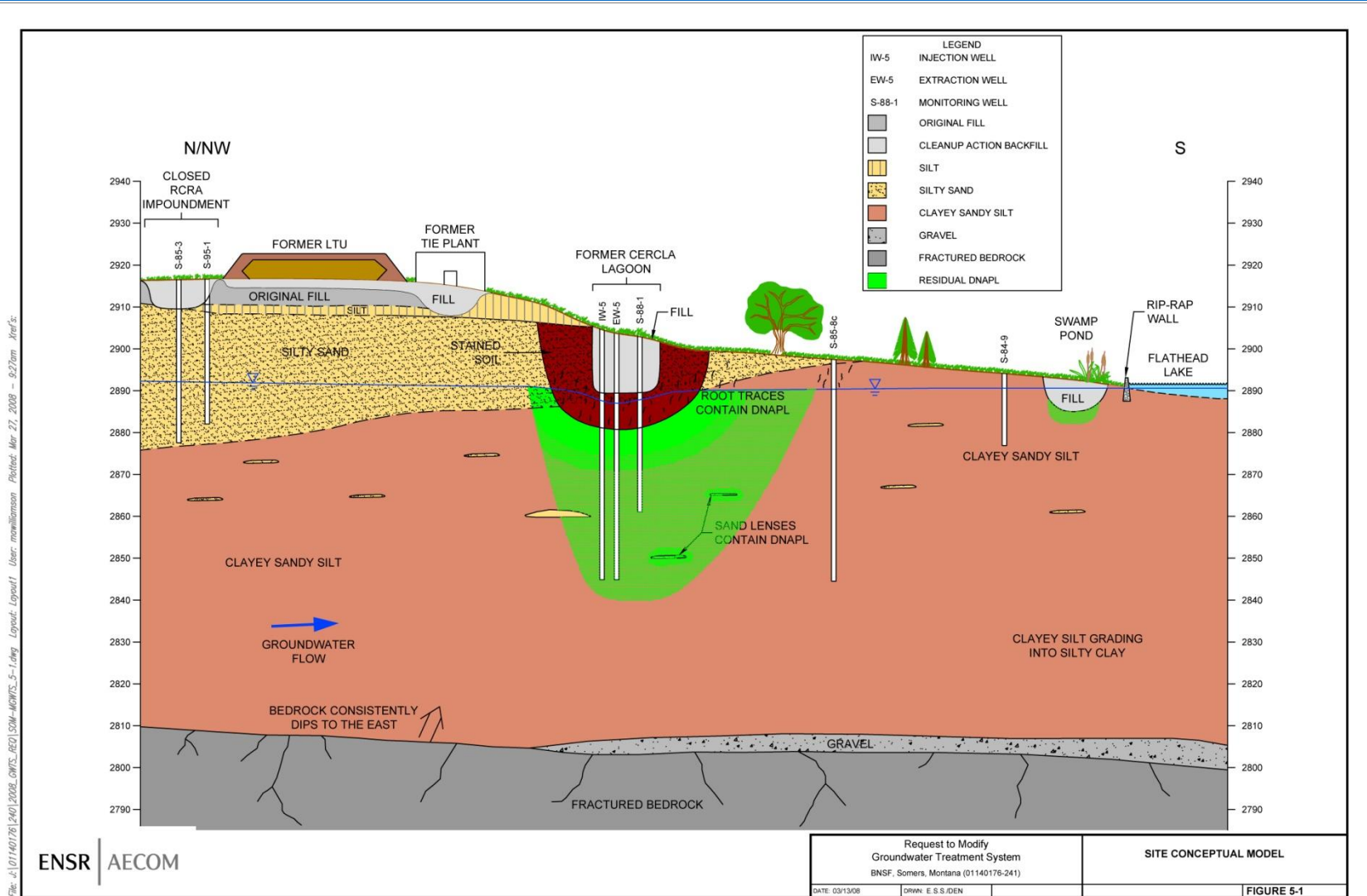
- Identify nature and extent of groundwater contamination
- Confirm groundwater flow direction
- Update existing Conceptual Site Model
- Possibly investigate other treatment/remedy options



TarGOST

Geoprobe

# Current Conceptual Site Model



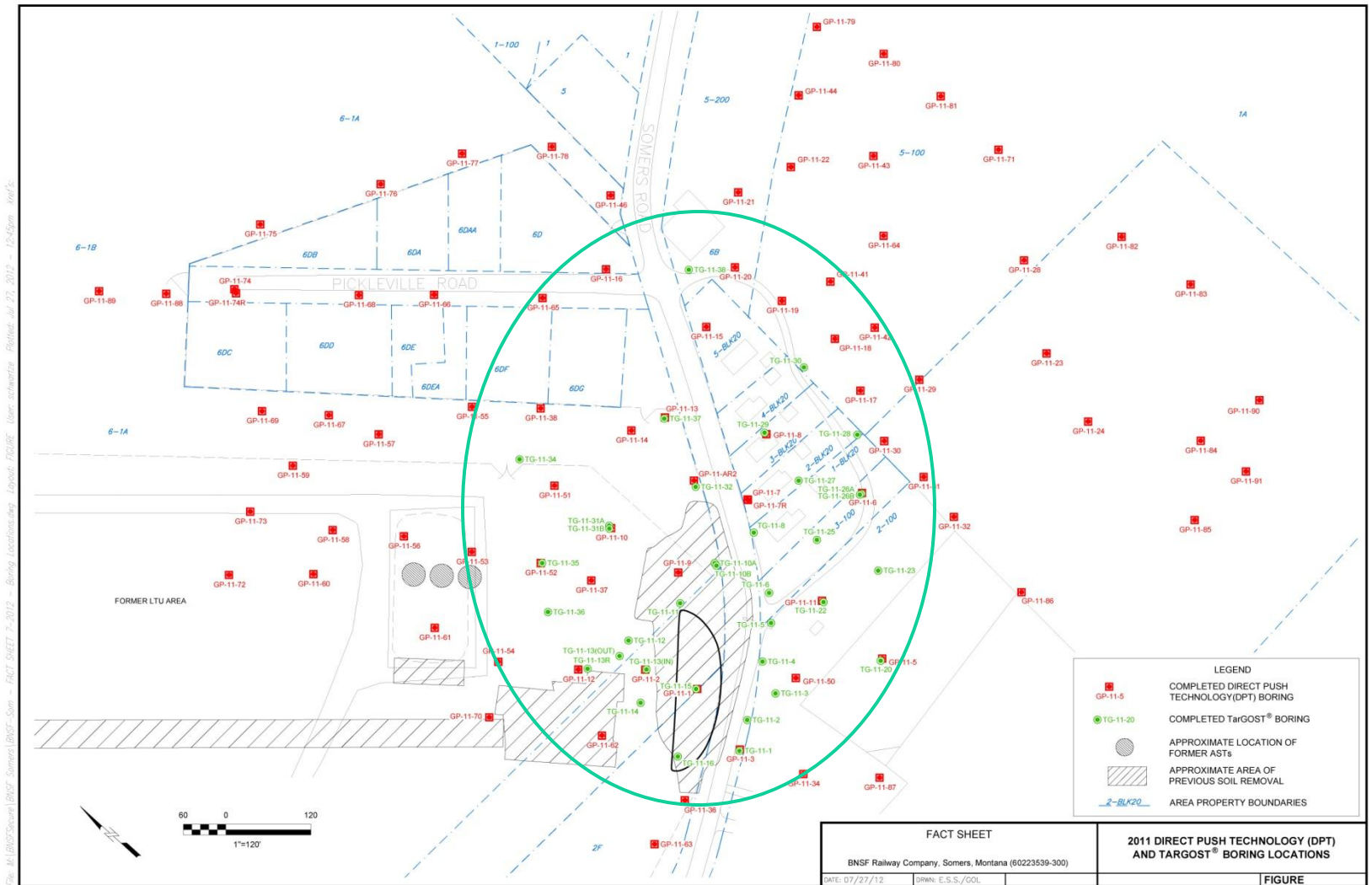
File: \\10140176\2401\2008\GWTS\_02\SDM-HGWTS\_5-1.dwg Layout: Layout1 User: marwilliamson Plotted: Mar 27, 2008 - 9:27am Xref's:

# Groundwater Investigation

- TarGOST
  - Tar + Green Optical Screening Technology
  - ▣ Used to detect presence/absence of creosote
  - ▣ Creosote “fluoresces”
  - ▣ Intensity of reaction varies
  
- September 2011
  
- TarGOST samples
  - ▣ Proposed: 15
  - ▣ Actual: 34

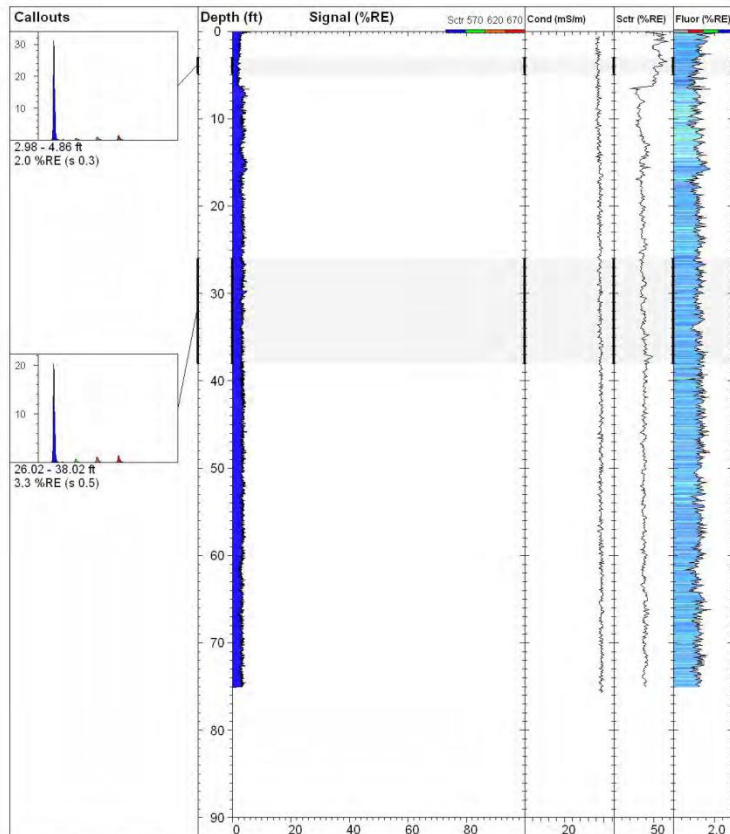



# Sampling Locations - TarGOST

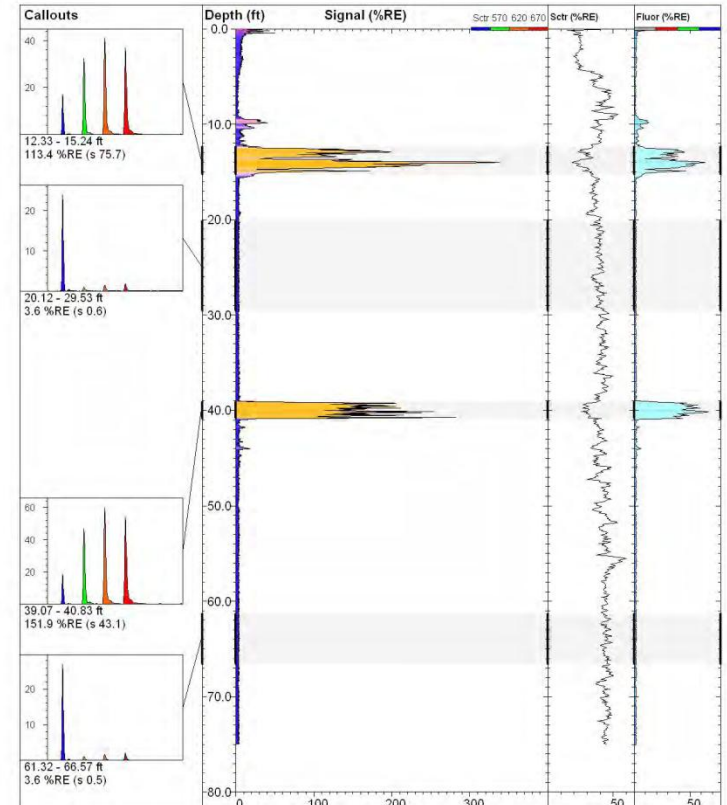



File: M:\BNSF\Secure\BNSF\_Somers\BNSF\_Som - FACT SHEET 7-2012 - Boring Locations.dwg Layout: FGDARE User: schwarzer Plotred: Jul 27, 2012 - 12:45pm 1x61.2

# TarGOST Readings

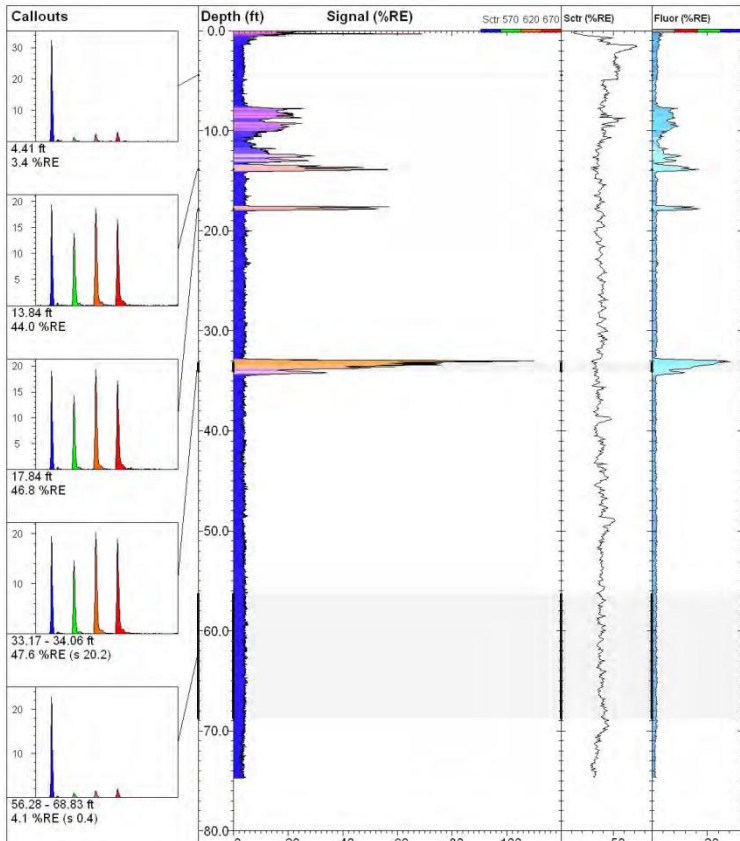



 <b>DAKOTA TECHNOLOGIES</b> <small>FARGO, ND 701.237.4908 WWW.DAKOTATECHNOLOGIES.COM</small>	<b>TG-11-16</b>		<b>TargOST By Dakota</b> <small>www.DakotaTechnologies.com</small>
	Site: BNSF Somers, MT	Y Coord (Lat-N) / System: Unavailable / NA	Final depth: 75.07 ft
	Client / Job: AECOM / 60193807.620	X Coord (Lng-E) / Fix: Unavailable / NA	Max signal: 6.4 %RE @ 0.13 ft
	Operator / Unit: T. Rudolph / TG1003	Elevation: Unavailable	Date & Time: 2011-09-16 11:42 MDT

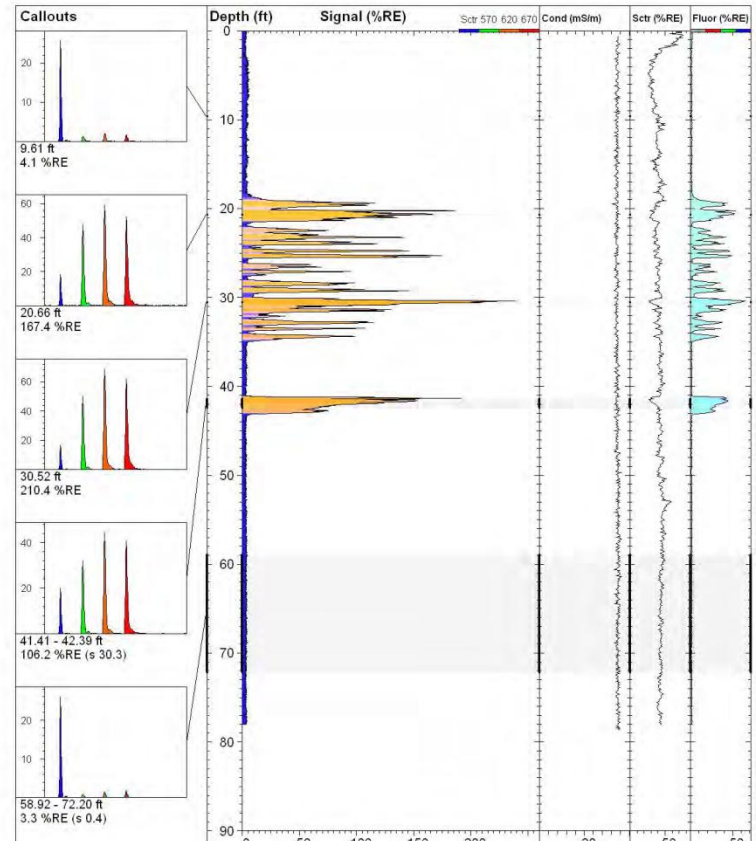



 <b>DAKOTA TECHNOLOGIES</b> <small>FARGO, ND 701.237.4908 WWW.DAKOTATECHNOLOGIES.COM</small>	<b>TG-11-08</b>		<b>TargOST By Dakota</b> <small>www.DakotaTechnologies.com</small>
	Site: BNSF Somers, MT	Y Coord (Lat-N) / System: Unavailable / NA	Final depth: 74.97 ft
	Client / Job: AECOM / 60193807.620	X Coord (Lng-E) / Fix: Unavailable / NA	Max signal: 338.8 %RE @ 13.95 ft
	Operator / Unit: T. Rudolph / TG1003	Elevation: Unavailable	Date & Time: 2011-09-22 09:04 MDT

# TarGOST readings



 <b>DAKOTA TECHNOLOGIES</b> <small>FARGO, ND 701.237-4908 WWW.DAKOTATECHNOLOGIES.COM</small>	<b>TG-11-06</b>		<b>TarGOST By Dakota</b> <small>www.DakotaTechnologies.com</small>	
	Site: BNSF Somers, MT	Y Coord.(Lat-N) / System: Unavailable / NA	Final depth: 74.74 ft	
	Client / Job: AECOM / 60193807.620	X Coord.(Lng-E) / Fix: Unavailable / NA	Max signal: 112.6 %RE @ 33.01 ft	
	Operator / Unit: T. Rudolph / TG1003	Elevation: Unavailable	Date & Time: 2011-09-19 11:02 MDT	



 <b>DAKOTA TECHNOLOGIES</b> <small>FARGO, ND 701.237-4908 WWW.DAKOTATECHNOLOGIES.COM</small>	<b>TG-11-11</b>		<b>TarGOST By Dakota</b> <small>www.DakotaTechnologies.com</small>	
	Site: BNSF Somers, MT	Y Coord.(Lat-N) / System: Unavailable / NA	Final depth: 78.04 ft	
	Client / Job: AECOM / 60193807.620	X Coord.(Lng-E) / Fix: Unavailable / NA	Max signal: 239.5 %RE @ 30.38 ft	
	Operator / Unit: T. Rudolph / TG1003	Elevation: Unavailable	Date & Time: 2011-09-17 12:53 MDT	

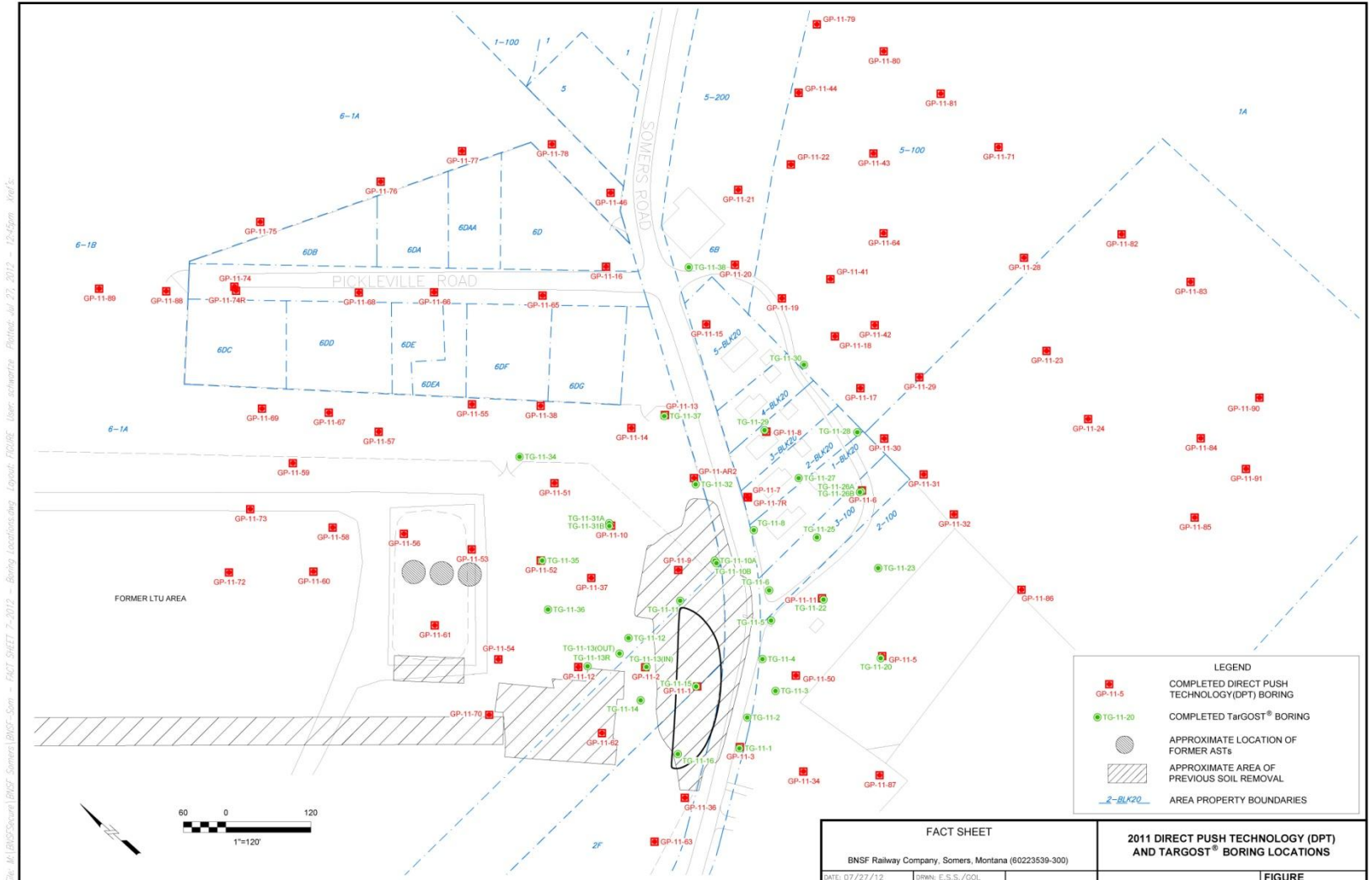


# Groundwater Field Investigation - Geoprobe

- Conducted September 2011-February 2012
- Collect soil profile, sample
- Groundwater level, sample
- Collected 145 soil and  
196 groundwater samples

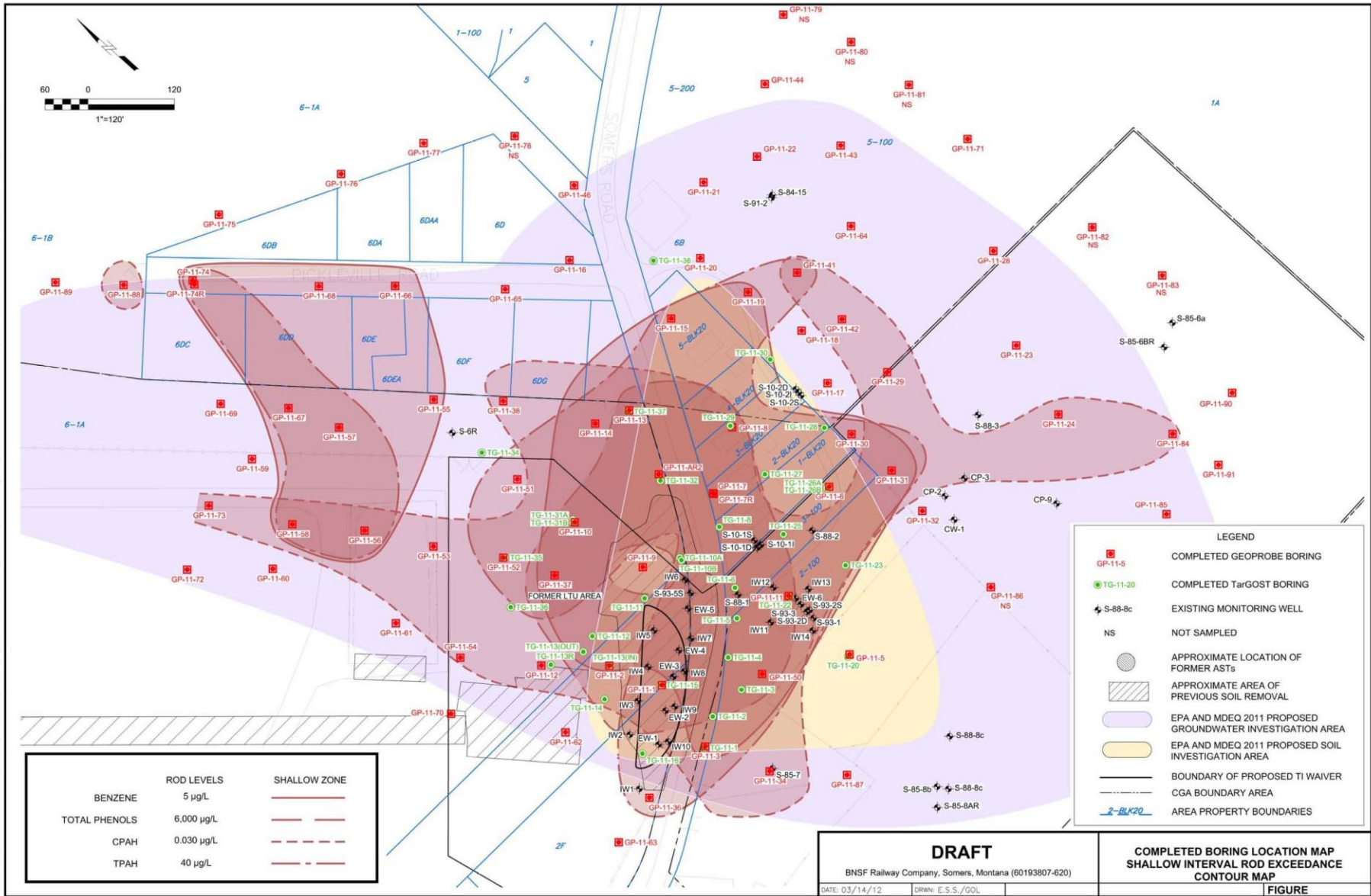


# Sampling Locations - Geoprobe

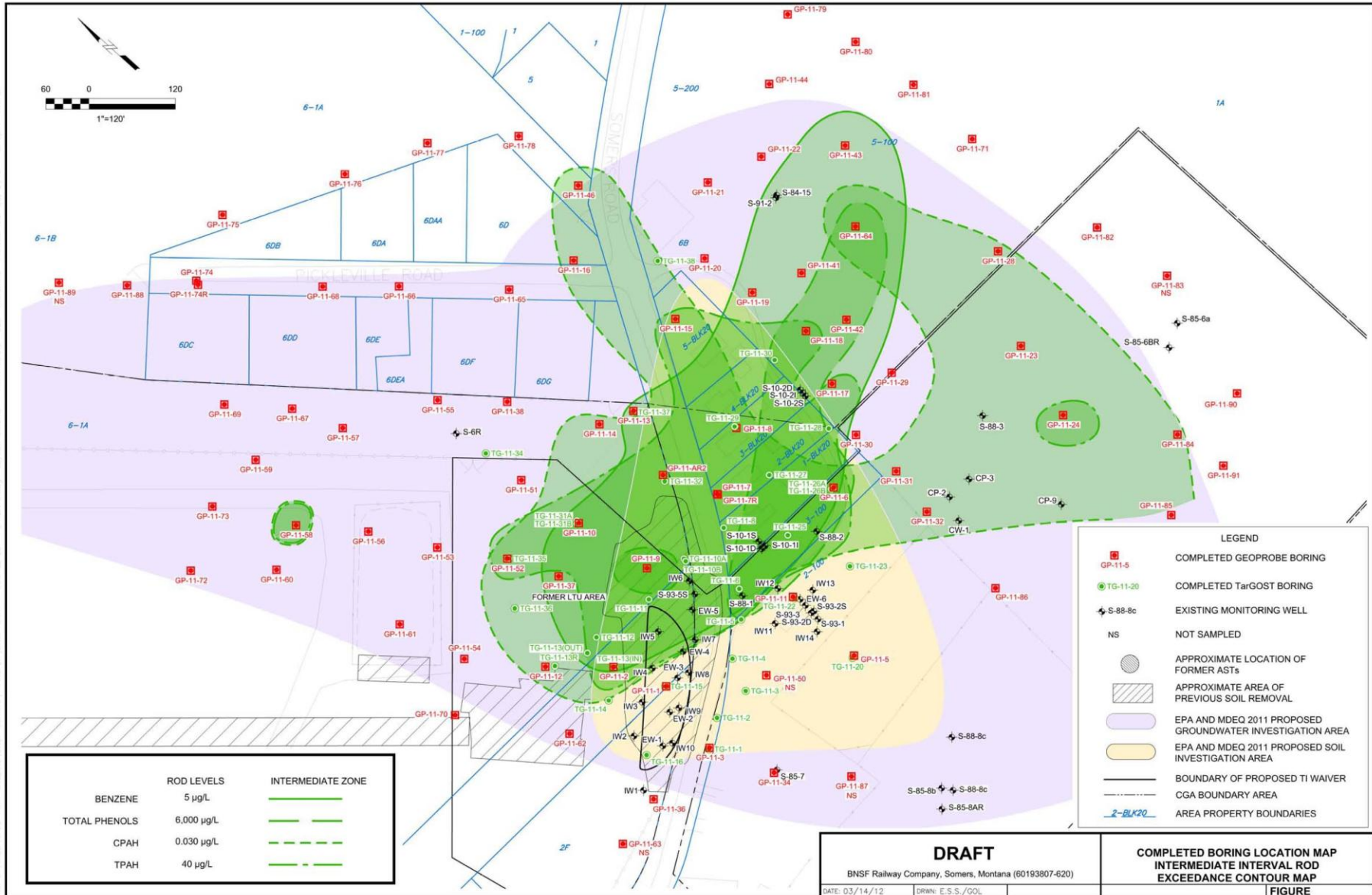


File: M:\BNSF\Secure\BNSF\_Somers\BNSF\_Som - FACT SHEET 7-2012 - Boring Locations.dwg    Layout: FGDARE    User: schwarz    Plot: Jul 27, 2012 - 12:45pm    1 of 2

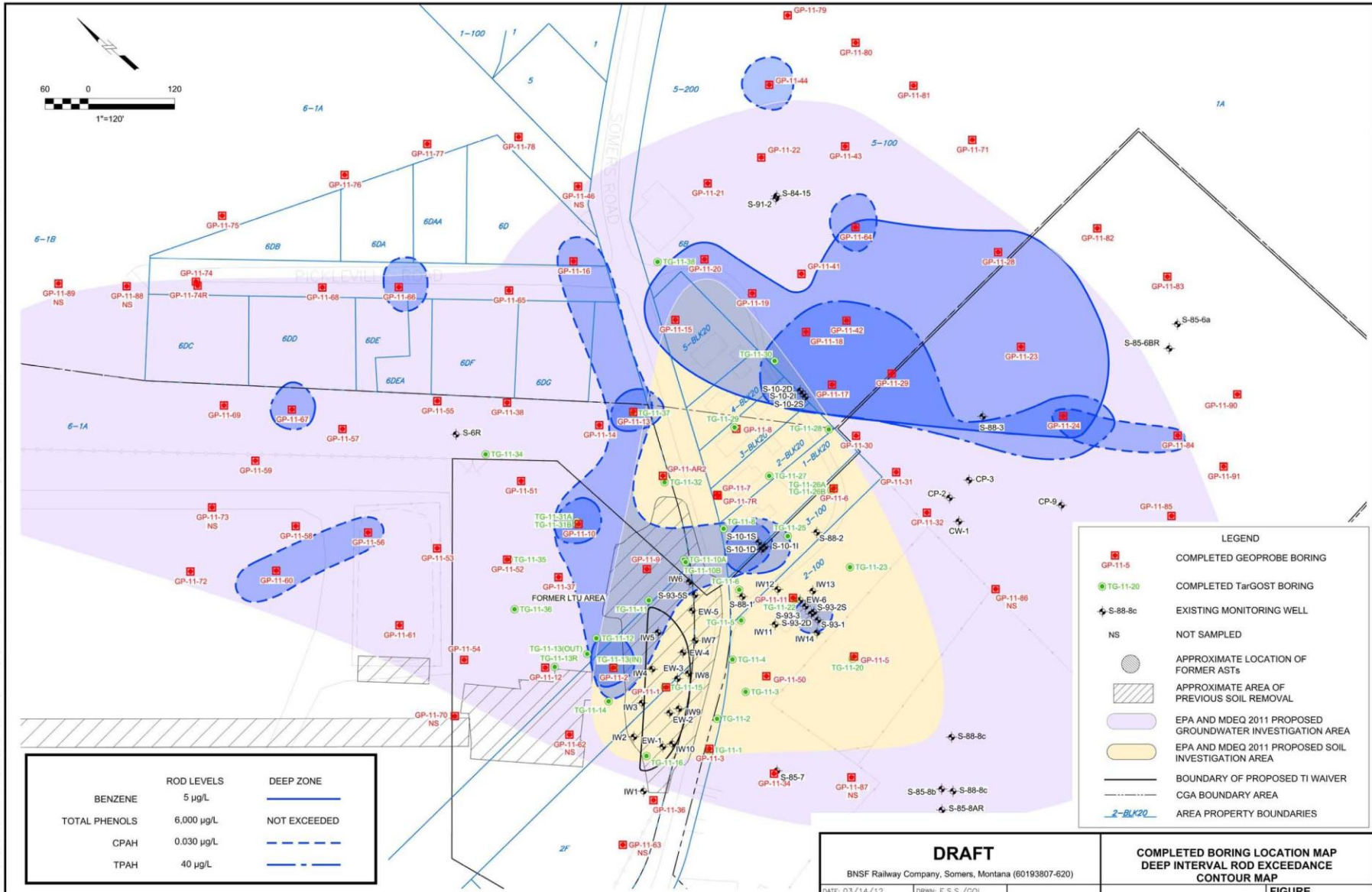
# ROD Exceedances – Shallow Zone



# ROD Exceedances – Intermediate Zone



# ROD Exceedances – Deep Zone



# Concurrently....

- Fall 2011 – groundwater investigation
- Fourth Five Year Review of Site Remedy underway
  
- Superfund Five Year Review
  - Is remedy functioning as intended?
  - Are the assumptions used in selecting the remedy still valid?
  - Is there new information that calls the remedy into question?
  
- Identified 6 issues; provided recommended actions

# Issue #1 – Changed Site Conditions

- Conditions have changed since the 1987 Risk Assessment and 1989 Record of Decision
  - Procedures
  - Data
  - Standards
  
- Recommendation: Re-evaluate the assumptions and methodologies used in the 1987 Risk Assessment and determine if a new Risk Assessment is needed.
  
- Due: September 30, 2013

## 4<sup>th</sup> Five Year Review:

### Issue #2 – Contaminants Exceed State Standards

- **Examples:**
  - 2,4-dimethylphenol
  - BTEX (Benzene, Toluene, Ethylbenzene, and Xylene)
  - Naphthalene
  
- **Recommendation:** Evaluate constituents exceeding DEQ-7 standards and determine appropriate cleanup goals
  
- **Due:** September 30, 2013



## Issue #3 – Groundwater Contamination

- Issue #3 Groundwater contaminant concentrations above the ROD levels; Evidence indicates more extensive groundwater contamination
  - Contamination found outside CGWA boundary
  - Need additional groundwater investigation
  
- Recommendation: Conduct environmental investigations to more fully characterize the nature and extent of Site contamination and potential risks to human health and the environment.
  
- Due: Work currently underway;  
September 30, 2014 completion date

## Issue #4 Monitoring – Vapor Intrusion

- Recommendation: Conduct additional residential screening(s) to more completely evaluate this potential risk pathway
  - Contaminants in groundwater can sometimes seep into the air inside homes
  - Potential risk pathway needs to be evaluated
  
- Action:
  - 2011 Sampling completed
  - 2012 and 2013 Sampling planned
  
- Due: September 30, 2013

## Issue #5 – Town Drinking Water Well

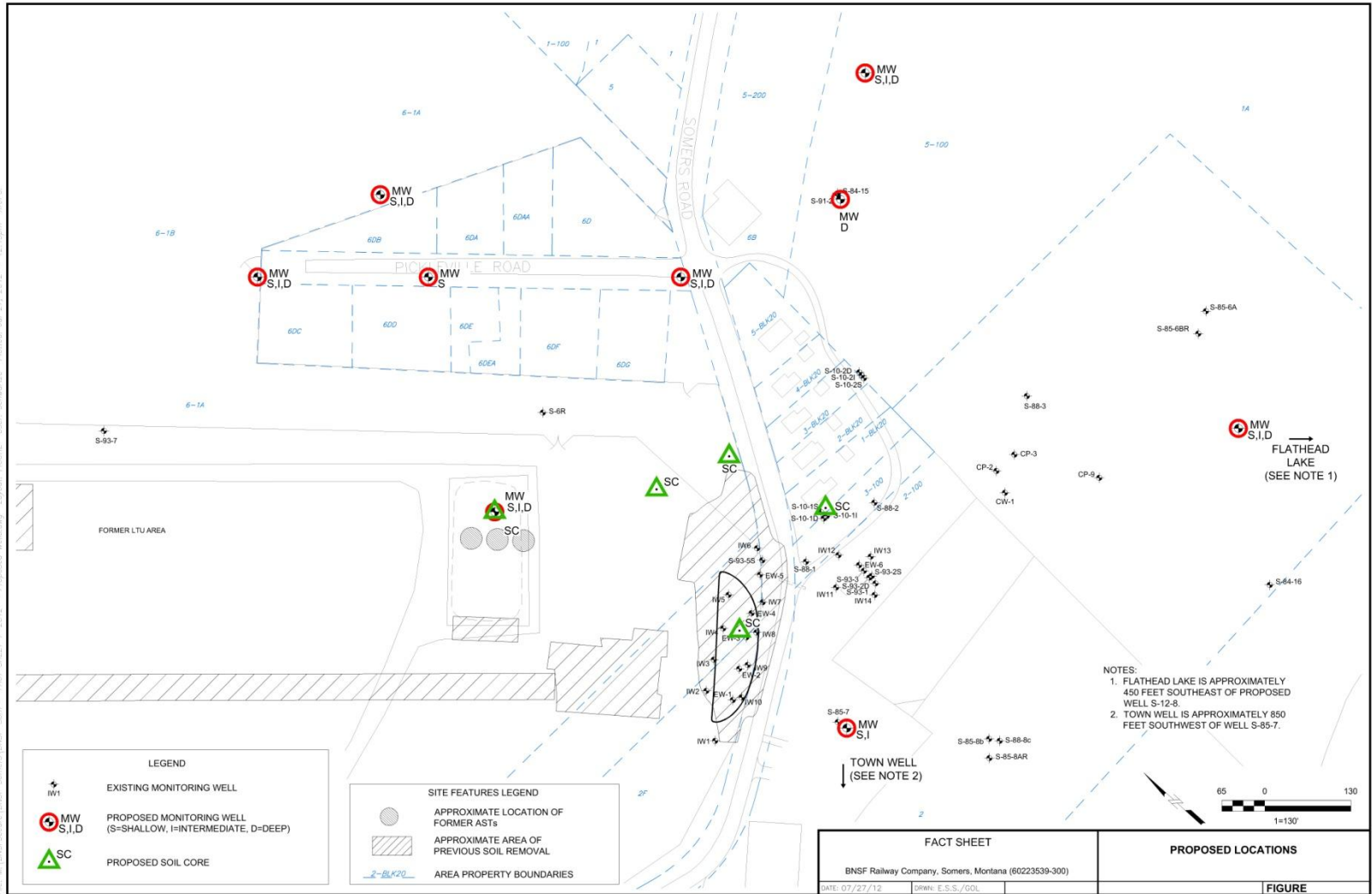
- ▣ Recommendation: Monitor the volatile organics (e.g., Benzene) and phenols to ensure continued protectiveness
- ▣ Town Drinking Water is safe
- ▣ Monitoring as extra precaution
- ▣ Action: Include beginning with next samples collected
- ▣ Due: Now - September/October 2012

## Issue #6 – Institutional Controls

- Recommendation: Implement enforceable Institutional Controls; Increase the size of the Controlled Groundwater Area
- Action: Work with BNSF and local governments to develop Institutional Controls
- Due: September 30, 2015

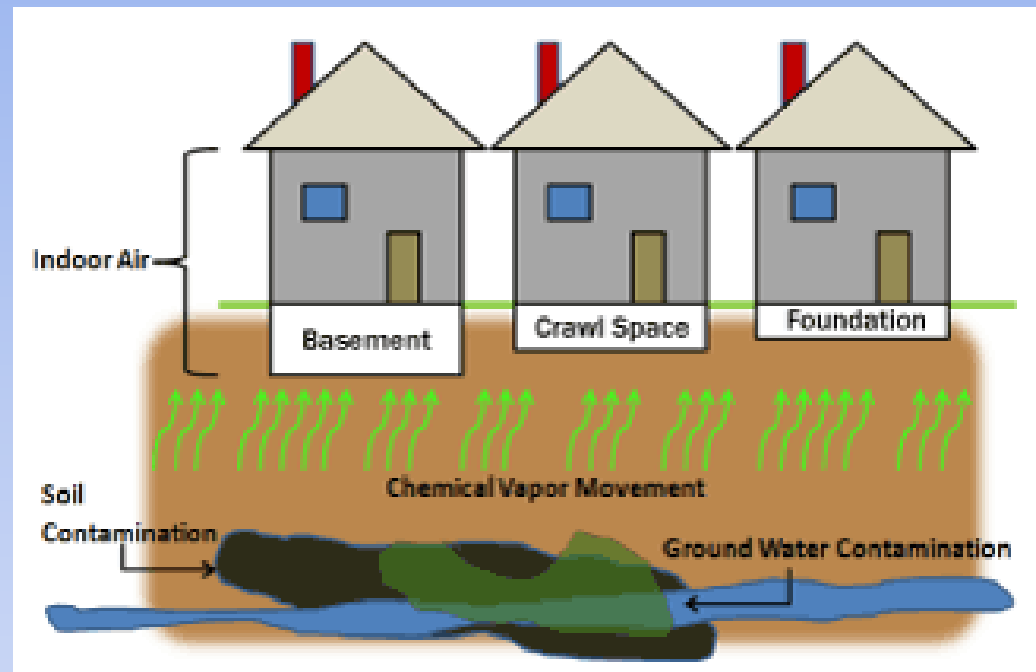
# New Groundwater Monitoring Wells

File: M:\BNSF\Civil\BNSF\_Somers\BNSF\_Som - FACT SHEET 2-2012 - Proposed Well Locations - Layout - DWG.dwg - User: schwaartz - Printed: Jul 27, 2012 - 12:45pm - NorA's



# Vapor Intrusion Screening

- Indoor air sampling
- Potential exposure
- 2011 screening
- Next Steps
  - ▣ Additional sampling
  - ▣ Work plan due next week



# Next Steps

- Monitoring Well installation – October
- On-going groundwater monitoring
- 2012-2013
  - Analyze and interpret data
  - Update Conceptual Site Model
  - Continue to sample indoor air
  - Re-examine cleanup levels and risk assessment
  - Re-evaluate technologies for the Site cleanup
- Continue to follow-up on 5YR recommendations

# Discussion

For more information:

[www.deq.mt.gov.fedsuperfund/bns.mcp.x](http://www.deq.mt.gov.fedsuperfund/bns.mcp.x)

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