

Bremerton Gas Works Superfund Site

Project Scoping Meeting
September 9, 2014

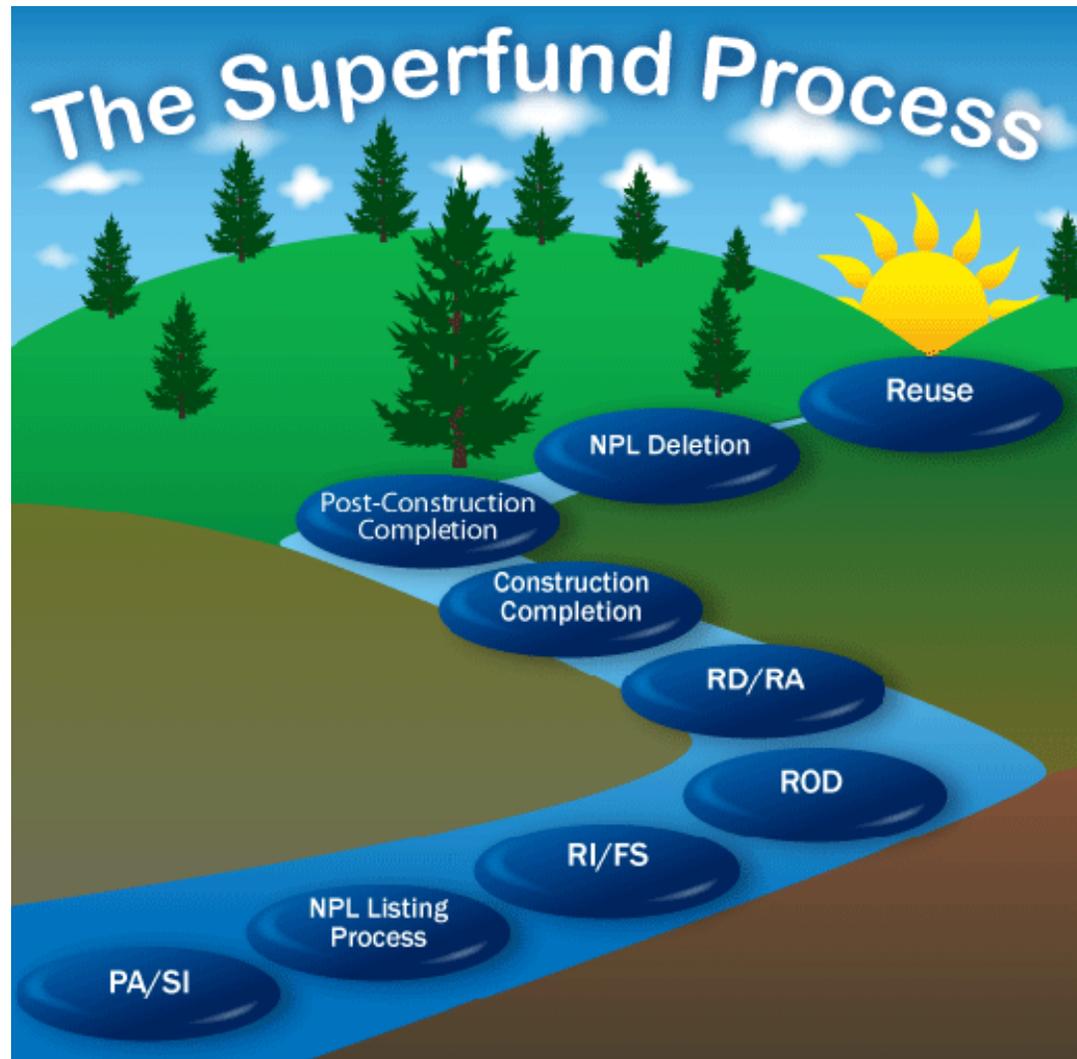
Meeting Purposes

- To update attendees about site-related activities and schedule for future work
- To present site history/background and initial planning of the site investigation
- To hear from you

Meeting Objectives

- Provide attendees with an overview of the Superfund process
 - Explain how site-related activities relate to that process
 - Relay the general timeline for near-term activities
- Provide site background information
- Discuss initial thinking about scope of upcoming site investigation
- To answer your questions and take your input on our work at the site

Superfund Process Overview

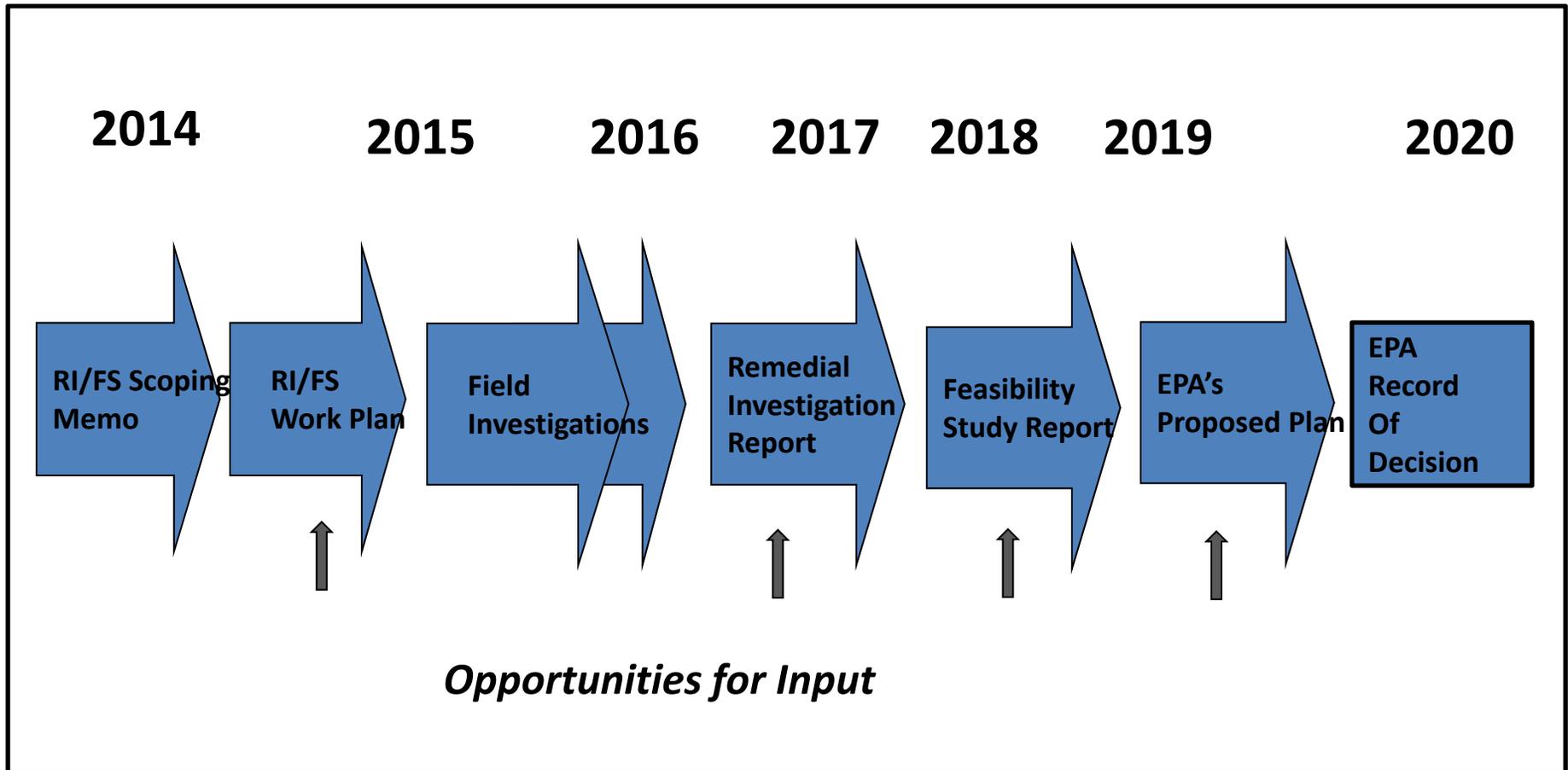


Remedial Investigation/Feasibility Study

- RI/FS Scoping
 - Define known information to help identify needed data gathering efforts
- Work Plan Development
 - Define data collection activities, methodologies and quality control practices
- Remedial Investigation
 - Define the nature and extent of contamination
 - Determine risks to human health and the environment
 - Collect data for treatability studies (if necessary)
- Feasibility Study
 - Develop, screen and evaluate remedial action options

Current Project Schedule

(Subject to change, if necessary to meet project requirements)



Near-Term Project Schedule

- Final Scoping Memo – Fall 2014
- **Draft RI/FS Work Plan – Fall 2014**
- Final RI/FS Work Plan – Spring 2015
- Commence RI/FS Field Investigation Work –
Summer 2015

Red = Opportunities for input/comment

HISTORY AND BACKGROUND

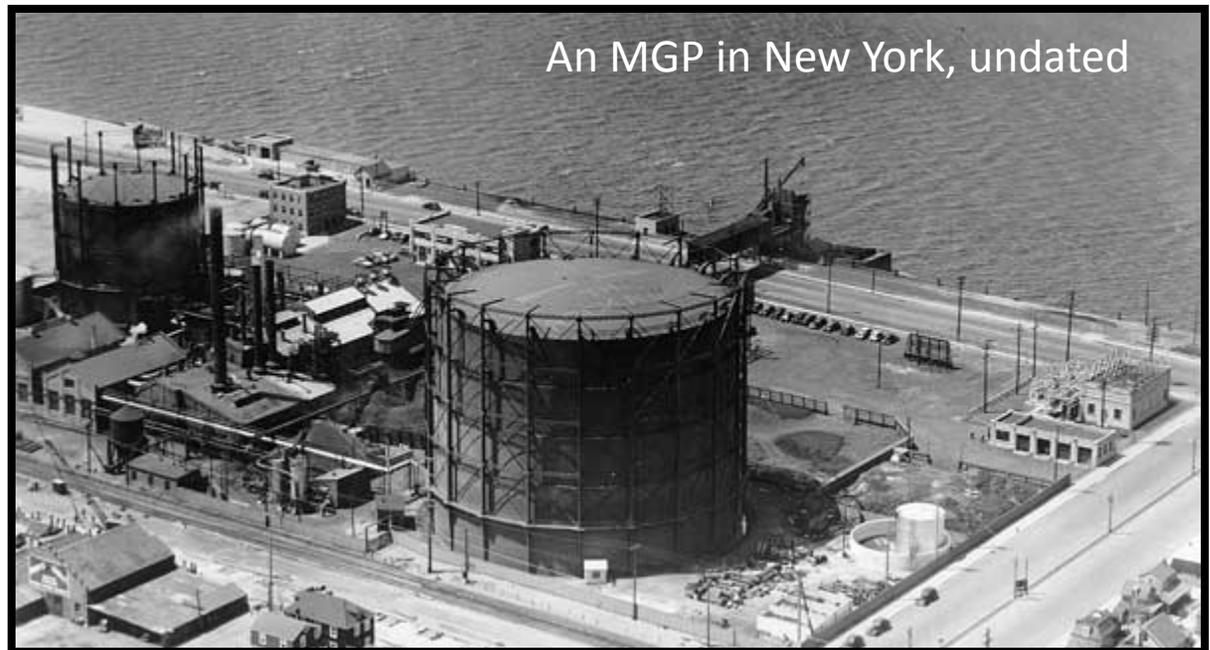
History of MGP in the US



Portland, Oregon GasCo MGP, undated

MGP Chronology

- **1816 – Baltimore, Maryland**
First commercial gas lighting of residences, streets and businesses
- **1850s – East of the Mississippi River**
Most towns of 10,000+ residents had MGPs
- **1852 – San Francisco**
First MGP on the West Coast

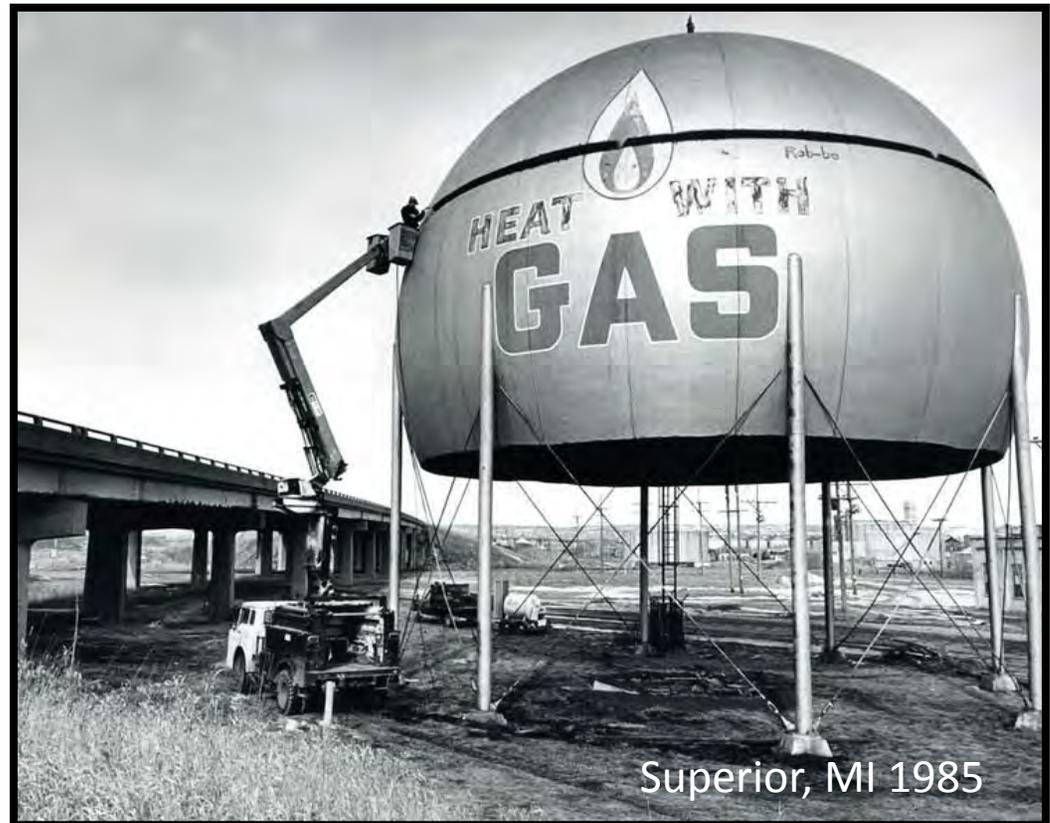


MGP Chronology

- 1877-1900 – Expansion across US
- 1901-1919 – Peak of Manufactured Gas

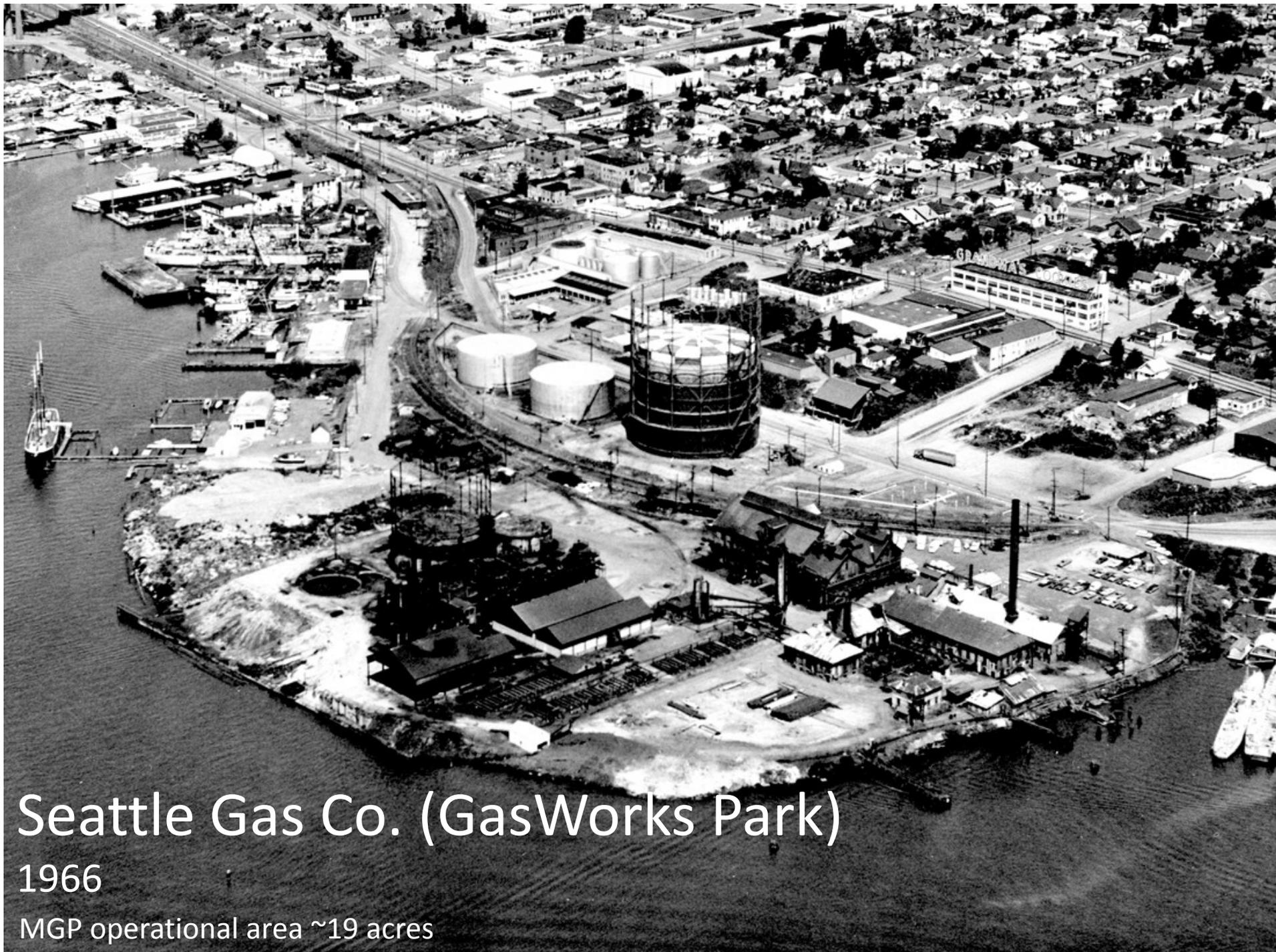
Carburetted water gas process brought manufactured gas to towns with populations of just a few thousand residents

- Estimated total of 52,000 MGPs in the US (circa 1815 – circa 1960)



MGP Chronology

- Gas lighting replaced by electricity
- Transition to providing other home services
 - Space and water heating and cooking
- Improvements made in long-distance pipelines
- Last “town” MGP facility closed by 1966.



Seattle Gas Co. (GasWorks Park)

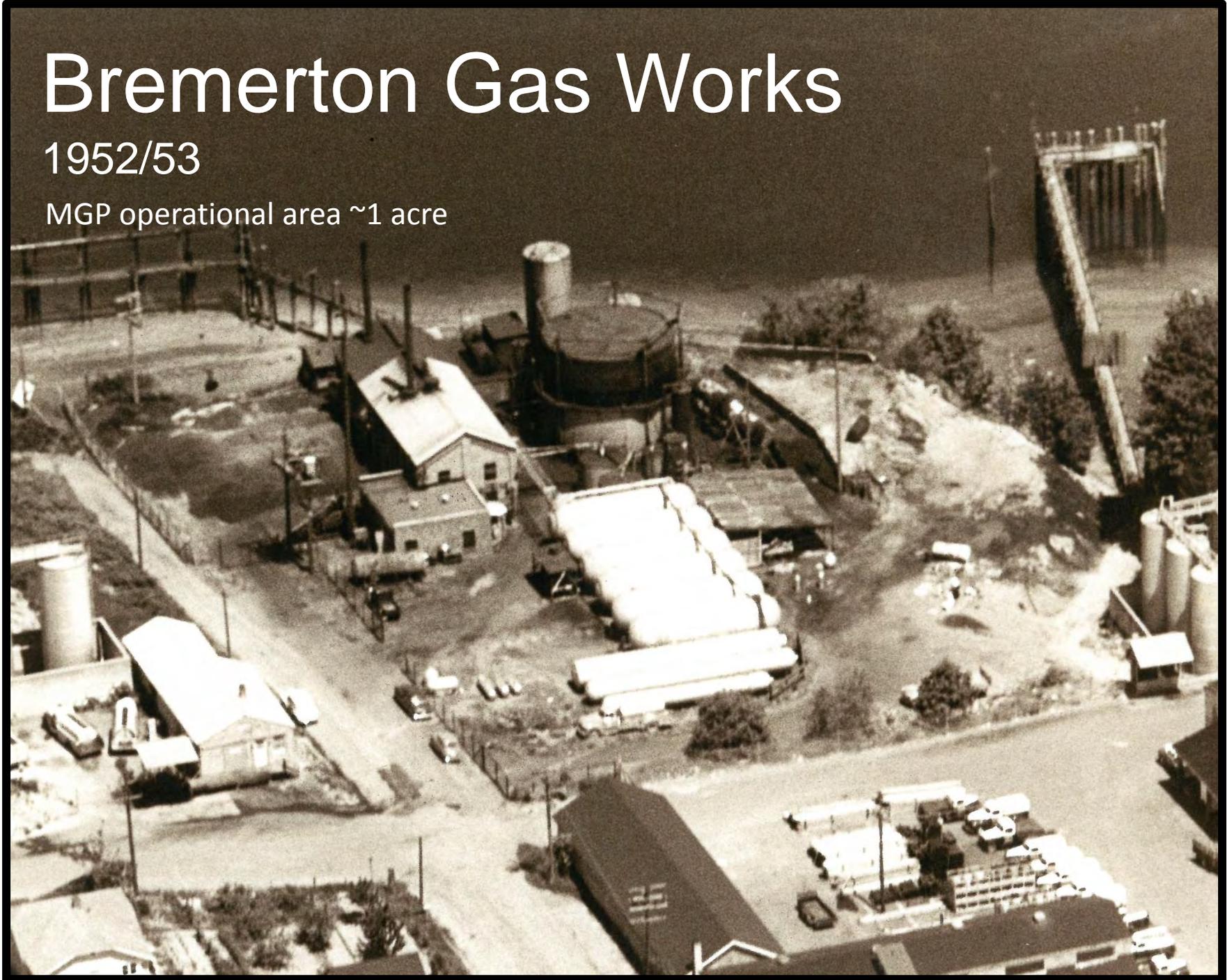
1966

MGP operational area ~19 acres

Bremerton Gas Works

1952/53

MGP operational area ~1 acre





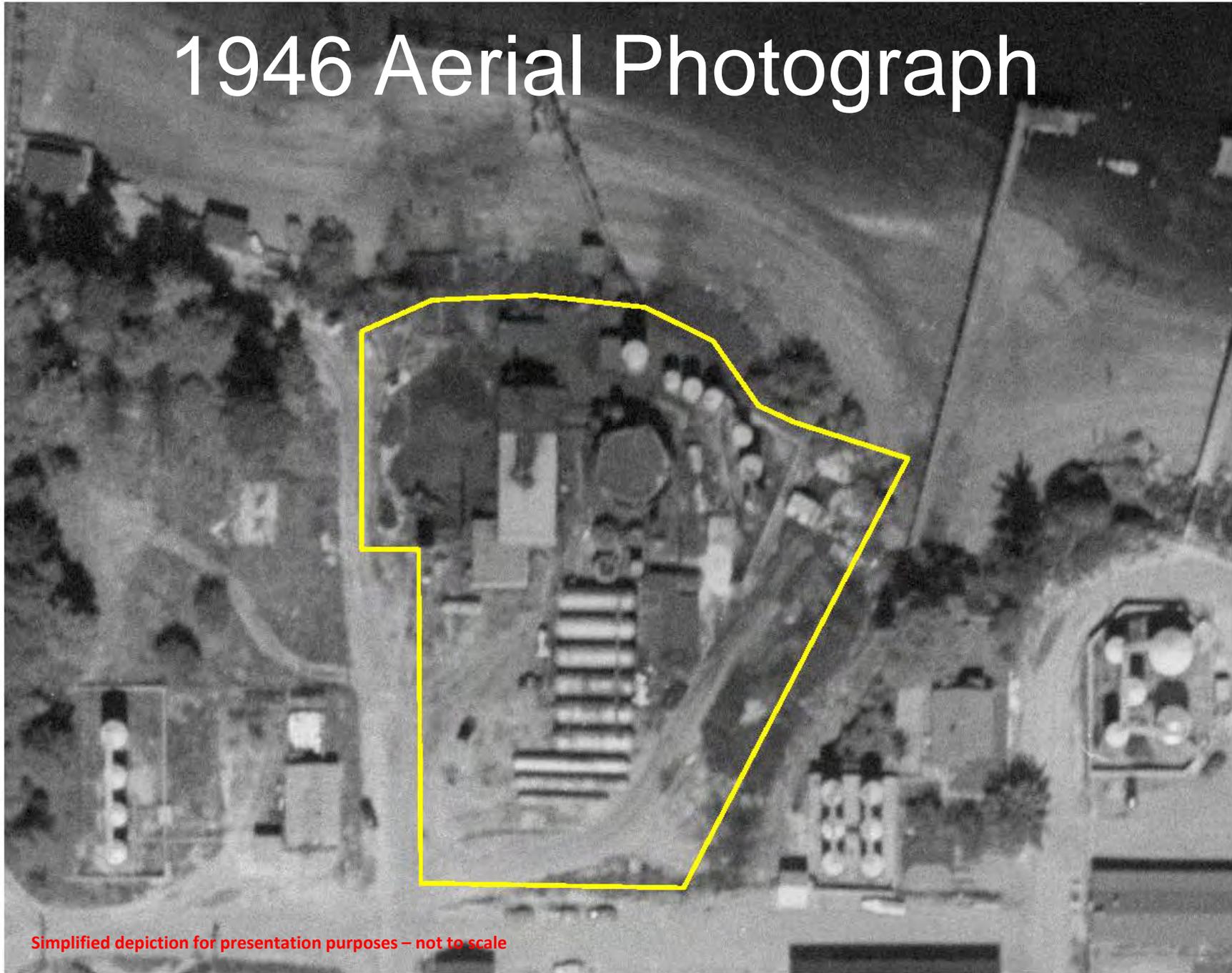
Phinney Bay

Dyes Inlet

Bremerton Gas Works

Sinclair Inlet

1946 Aerial Photograph



Simplified depiction for presentation purposes – not to scale



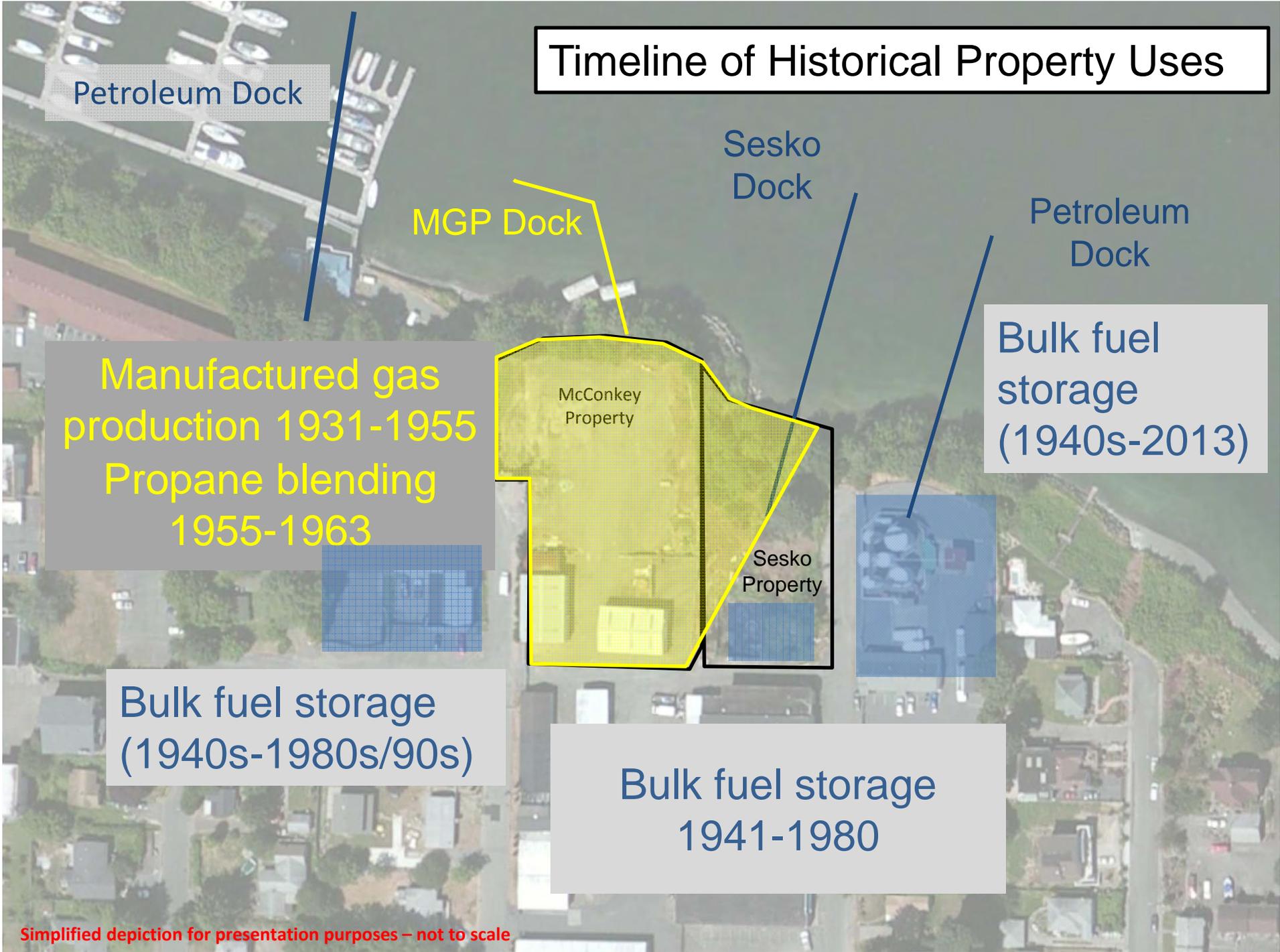
Former Gas
Works Location

McConkey
Property

Sesko
Property

Simplified depiction for presentation purposes – not to scale

Timeline of Historical Property Uses



Simplified depiction for presentation purposes – not to scale

Timeline of Historical Property Uses

Boat maintenance, auto parking/salvage, and equipment storage 1992-2006

Light industrial use
1963-current

*(southern property light industrial use from the 1940s)

McConkey Property

Sesko Property

Simplified depiction for presentation purposes – not to scale

MANUFACTURED GAS PROCESS

Material
Handling &
Storage

MGP Dock

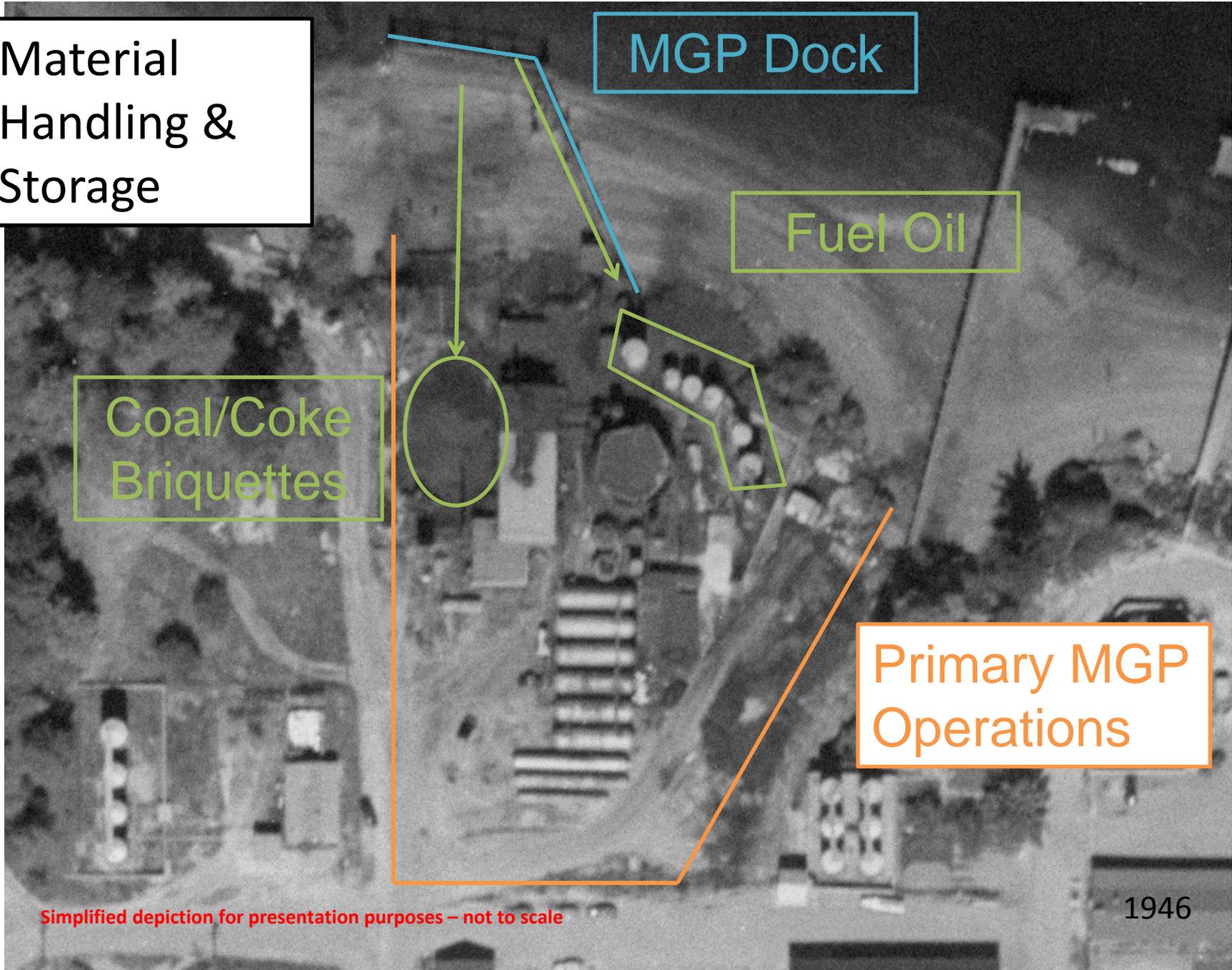
Fuel Oil

Coal/Coke
Briquettes

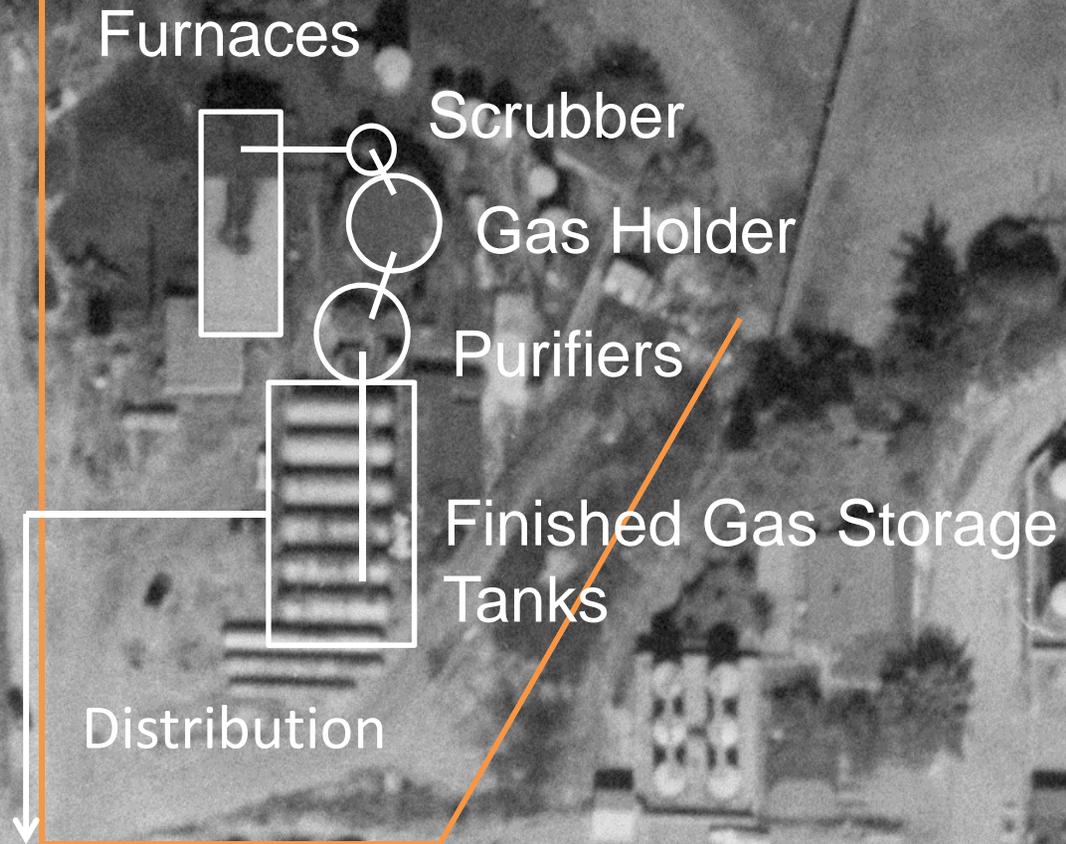
Primary MGP
Operations

Simplified depiction for presentation purposes – not to scale

1946



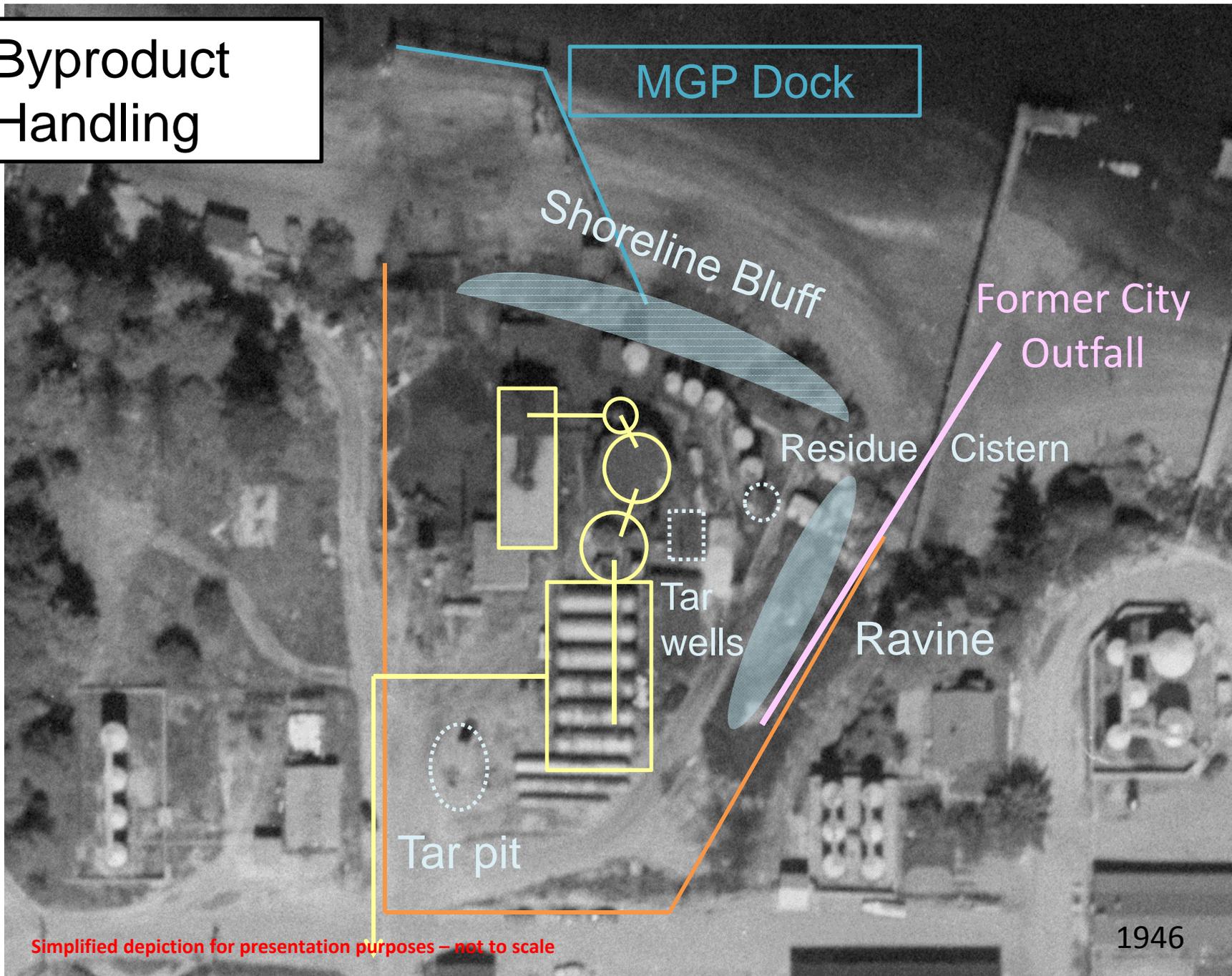
Process Description



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1946

Byproduct Handling



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PREVIOUS INVESTIGATIONS AND ACTIONS

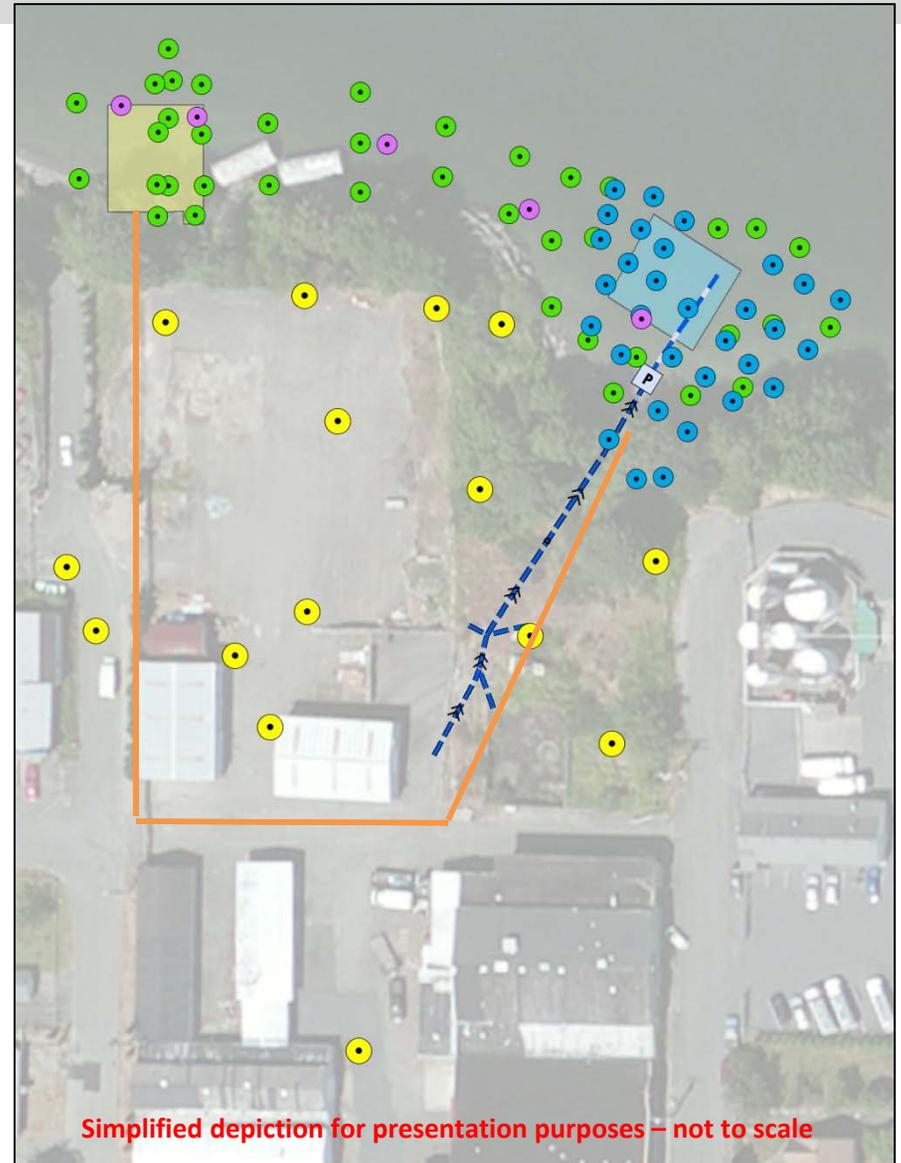
Previous Investigation Results

Soil & Groundwater

- MGP and Petroleum-Related Chemicals
 - Benzene
 - Naphthalene
 - Polycyclic Aromatic Hydrocarbons (PAHs)
- Other Chemicals
 - Metals (copper, arsenic, nickel, chromium)

Sediment

- PAHs



Time Critical Removal Actions

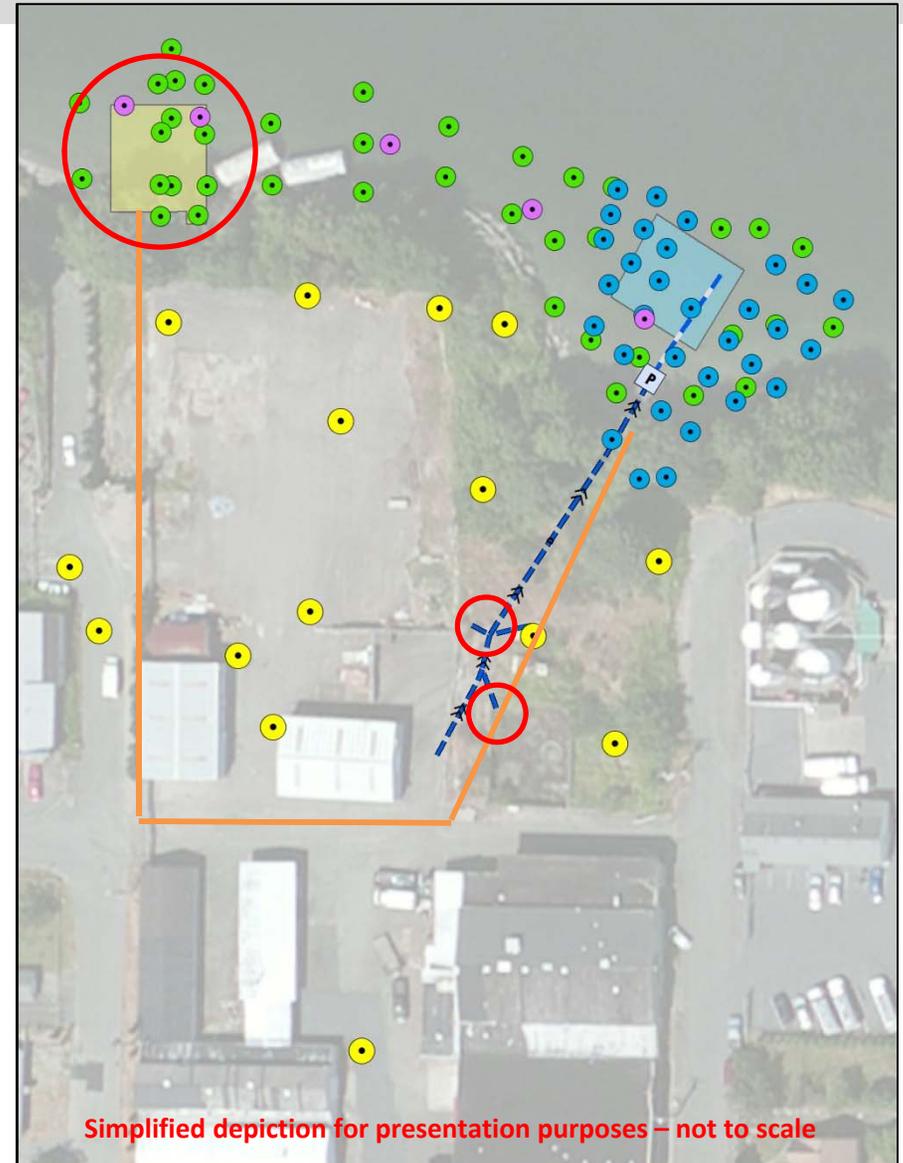
(TCRAs)

2010

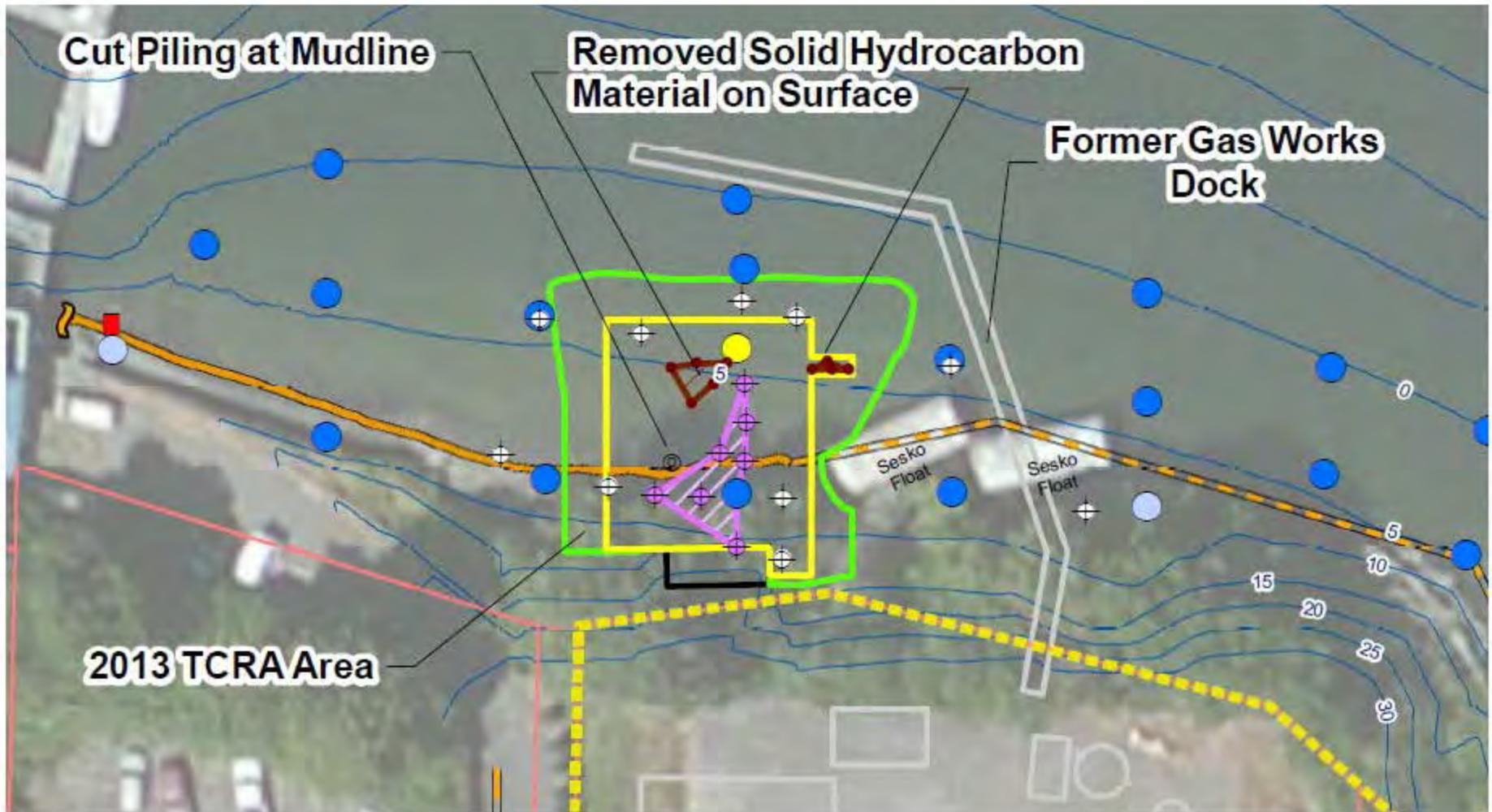
- Former Drainage Line cut and plugged
- Mat placement

2013

- Mat placement
- Capping of Manhole A
- Drain line plugging



2013 TCRA



2010 TCRA Photos



2013 TCRA Photos



Extent of MGP-related chemicals

** (based on sampling to date)



INITIAL SCOPING CONSIDERATIONS

Remedial Investigation/Feasibility Study (RI/FS)

General Objectives

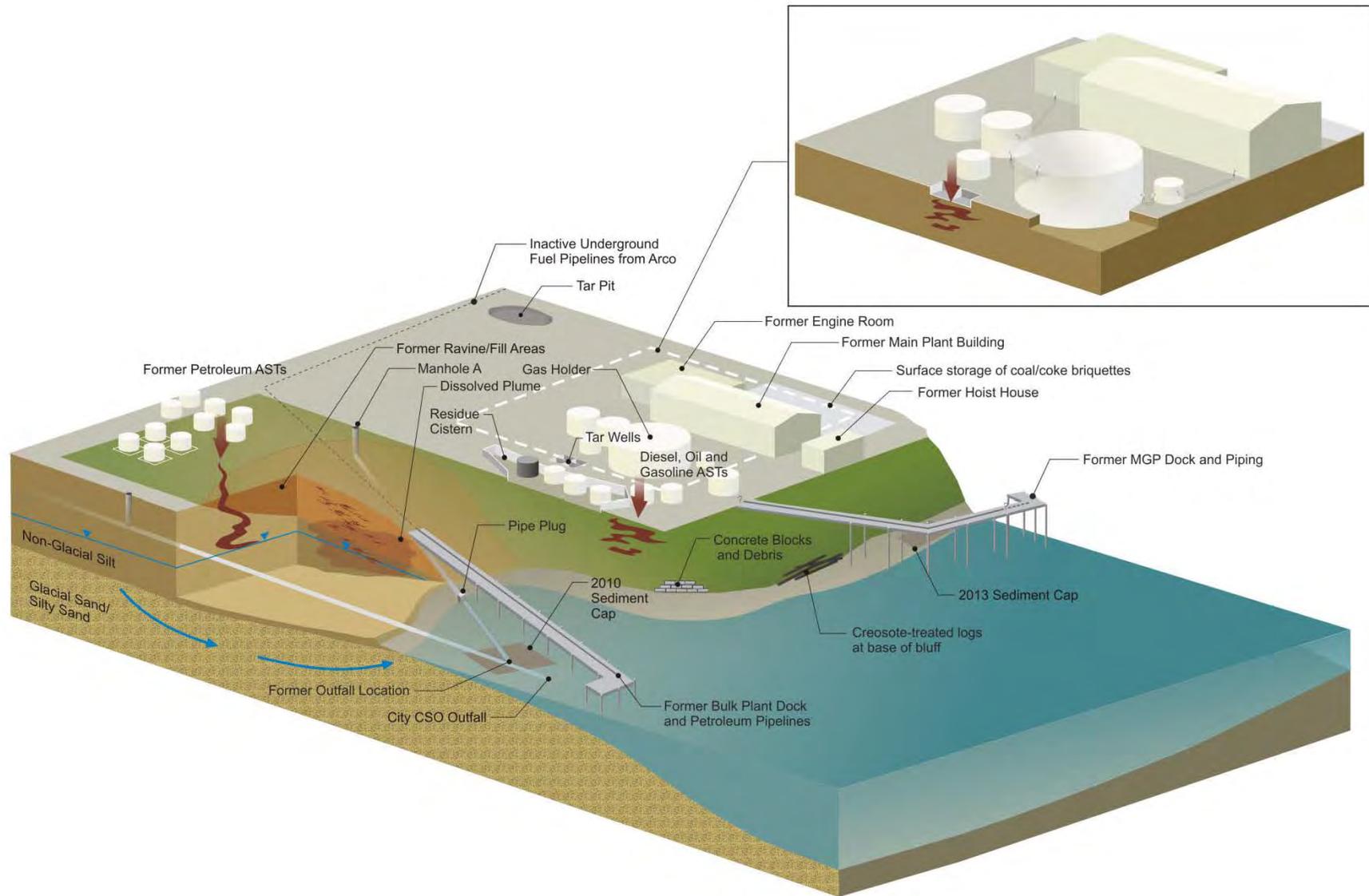
- Define the lateral & vertical extent
- Evaluate migration & transport pathways
- Provide sufficient data to evaluate risk to human health and the environment

Remedial Investigation/Feasibility Study (RI/FS)

General Objectives

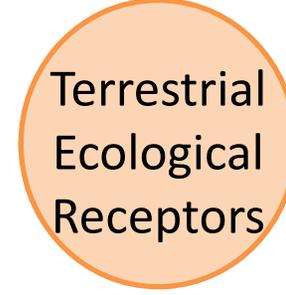
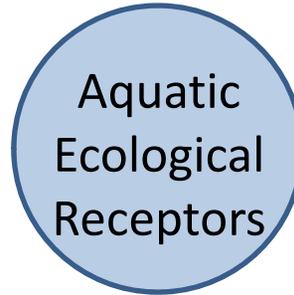
- Collect data to support the evaluation of remedial alternatives, such as:
 - Containment
 - Removal/ex-situ treatment and disposal
 - In-situ treatment
 - Institutional controls

Preliminary Conceptual Site Model



RECEPTORS AND PATHWAYS

Receptors



Exposure Pathways

- Direct Contact
- Ingestion
- Inhalation
- Consumption of Organisms

Site Conditions

- Soil, Groundwater, Dust/Vapors
- Sediment, Porewater, Surface water, Fish/Shellfish

Potential Upland Investigation Approach

Surface explorations:

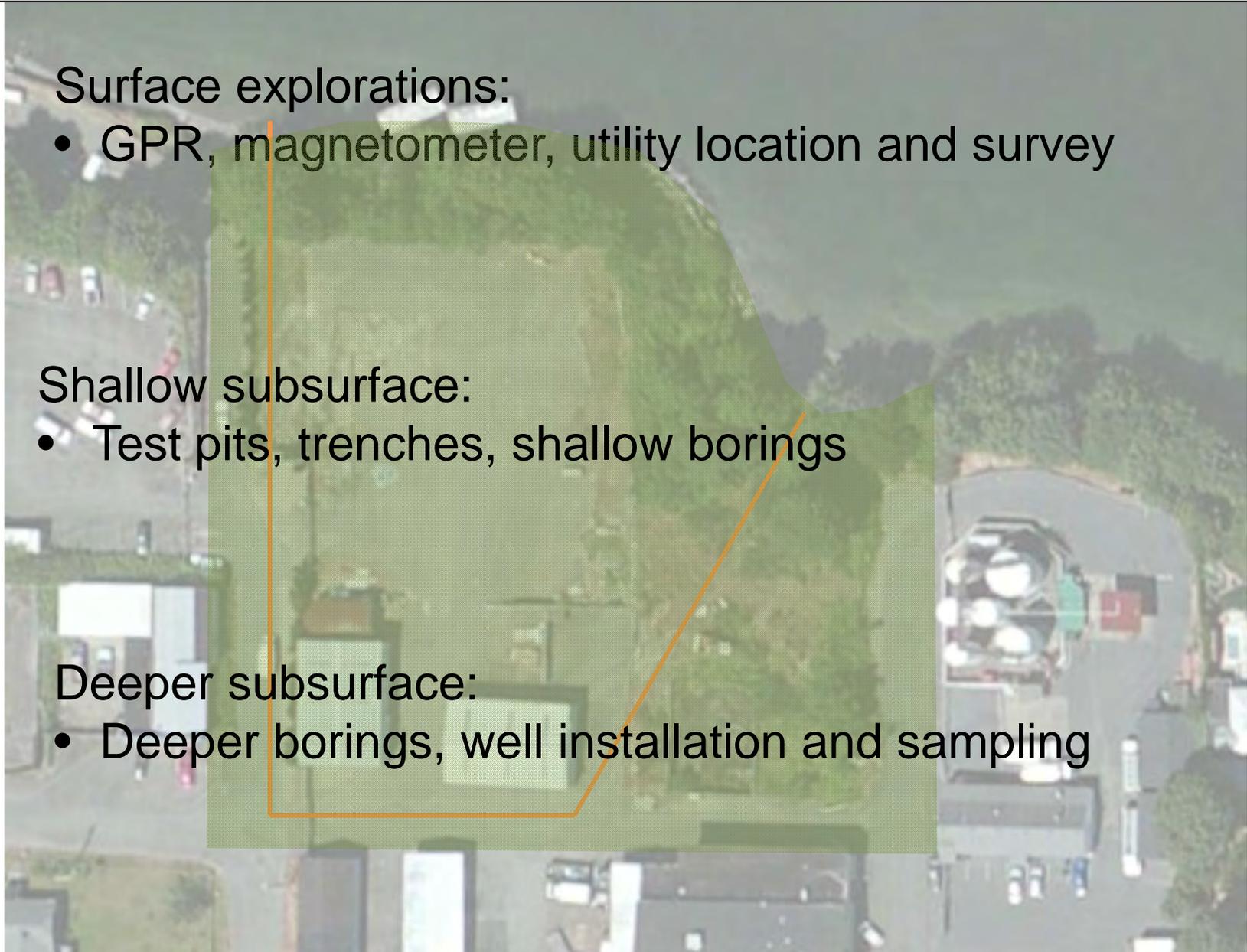
- GPR, magnetometer, utility location and survey

Shallow subsurface:

- Test pits, trenches, shallow borings

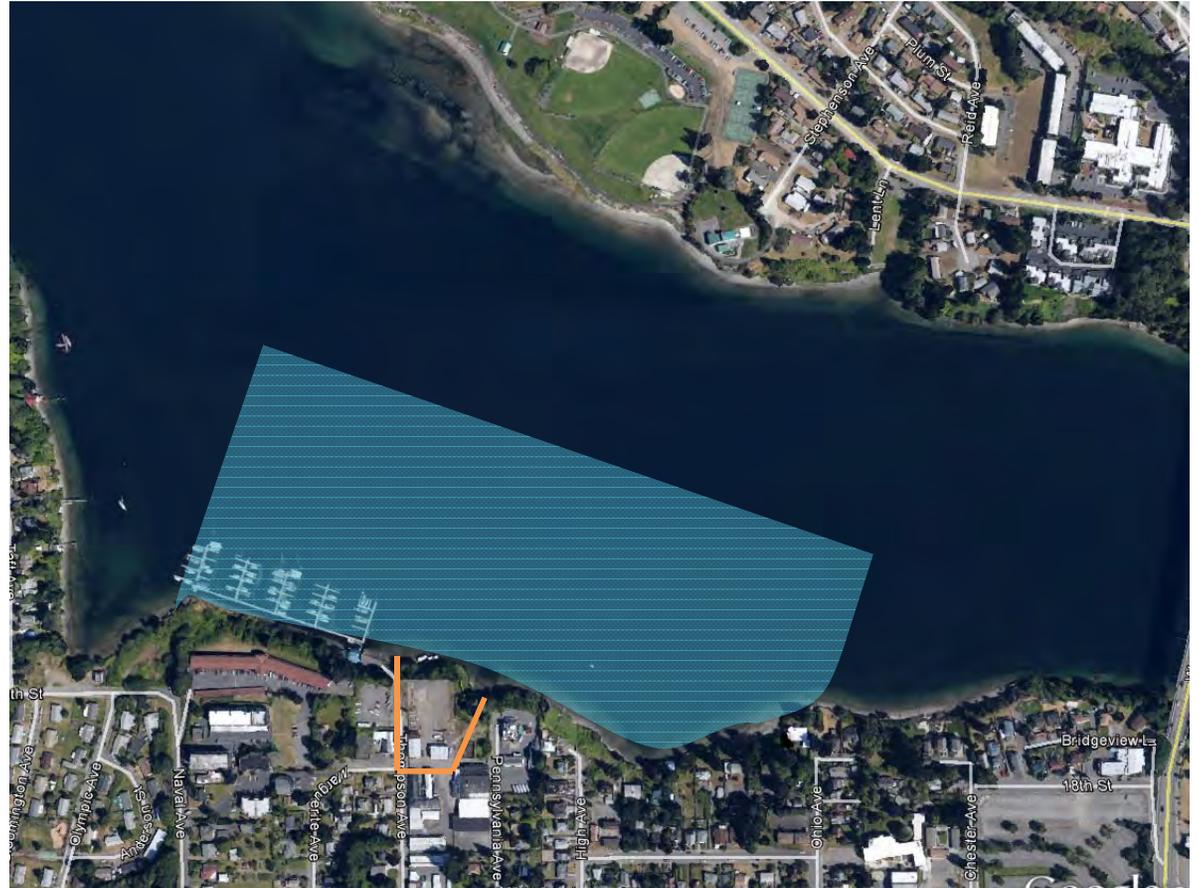
Deeper subsurface:

- Deeper borings, well installation and sampling



Potential Sediment Investigation Approach

- Beach survey/sub-tidal video survey
- Surface and subsurface sediment sampling
- Porewater sampling
- Surface water sampling



Find Information about the Site at

<http://go.usa.gov/bpWz>