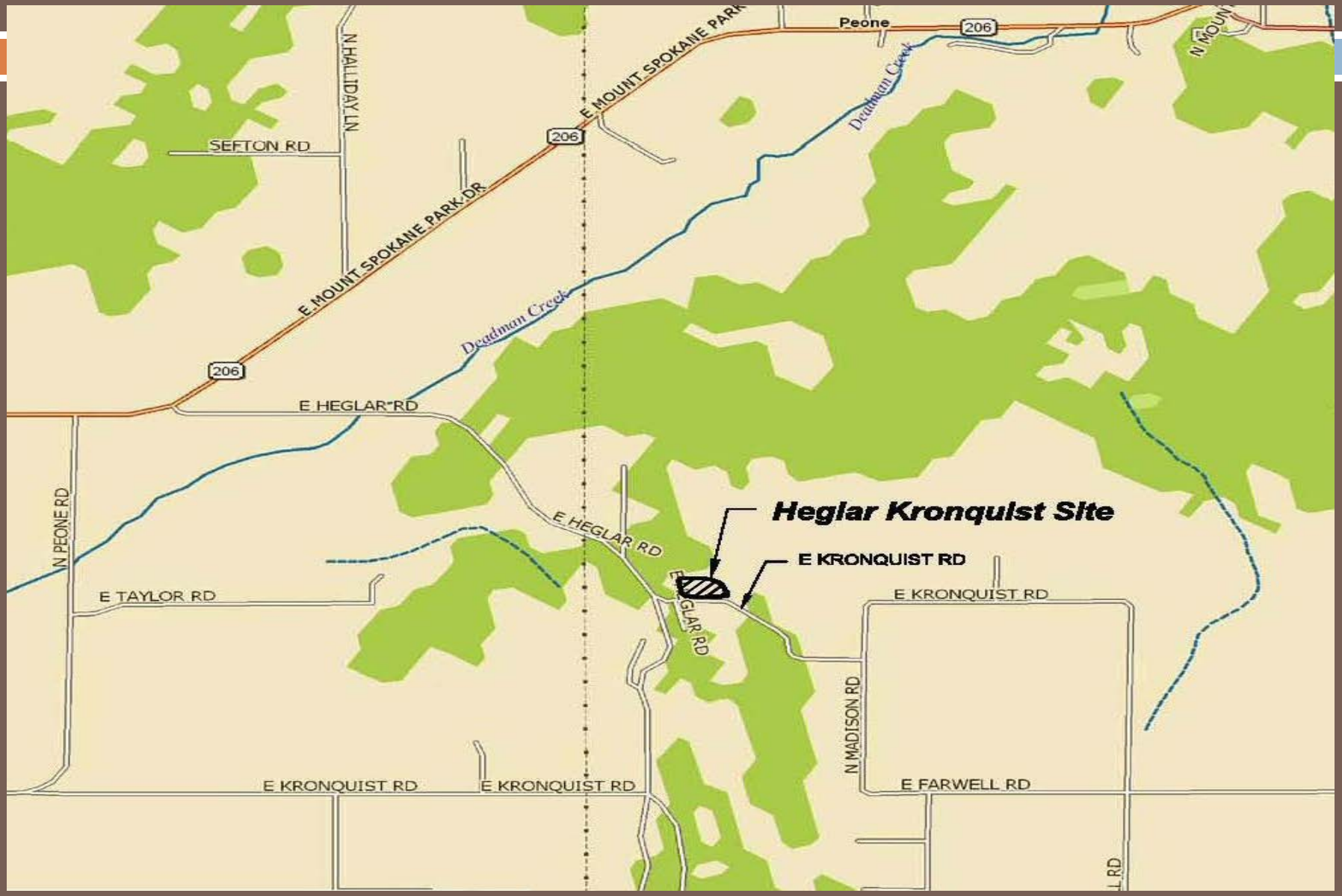
HEGLAR KRONQUIST SITE

Heglar & Kronquist Roads
Mead, WA

Presented by the

DEPARTMENT OF
ECOLOGY
State of Washington

SITE LOCATION



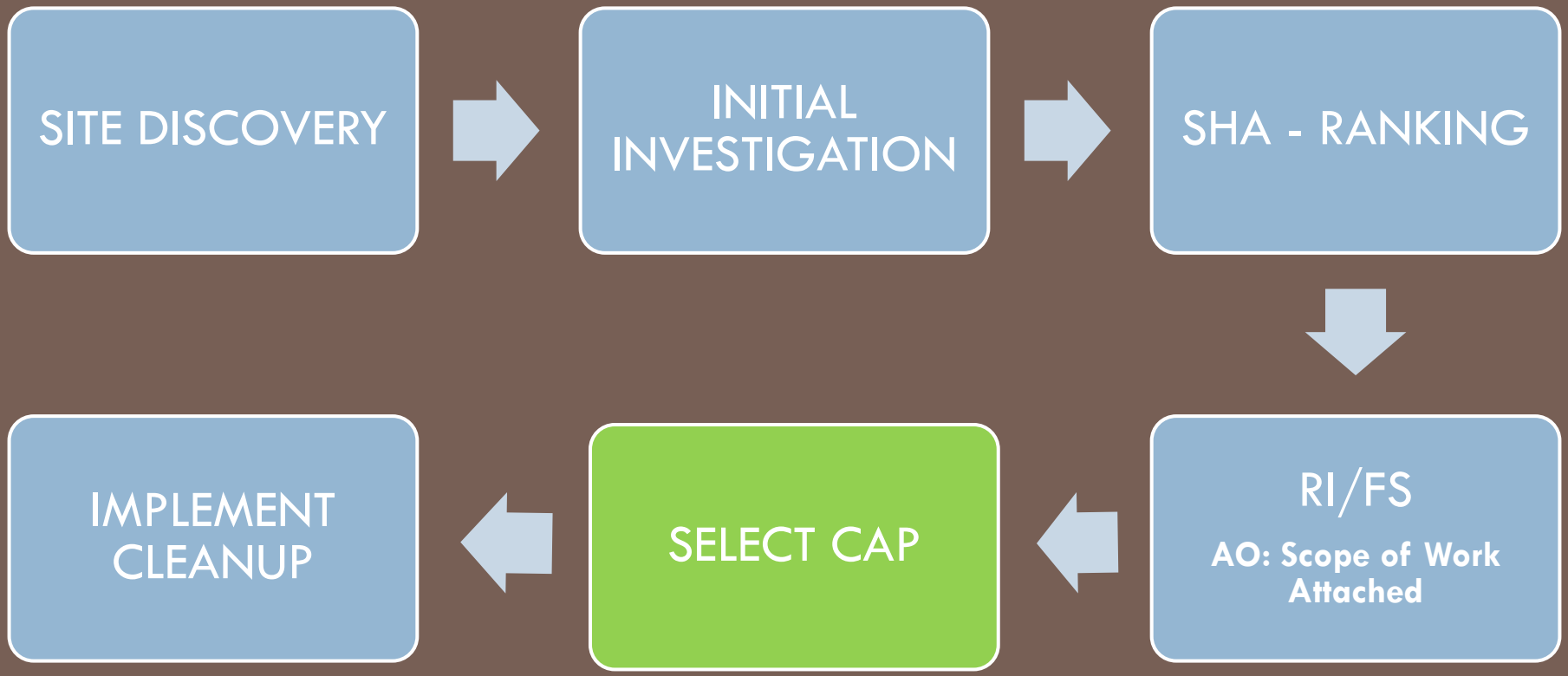
COMMUNITY INFLUENCE ON PROJECT

- Kaiser conducted domestic well sampling for residents near the site prior to Agreed Order
- Kaiser, Ecology, and Spokane Regional Health District Investigated Arsenic questions not related to the site
- One-on-one meetings were held with residents who requested additional site information

COMMUNITY INFLUENCE ON PROJECT

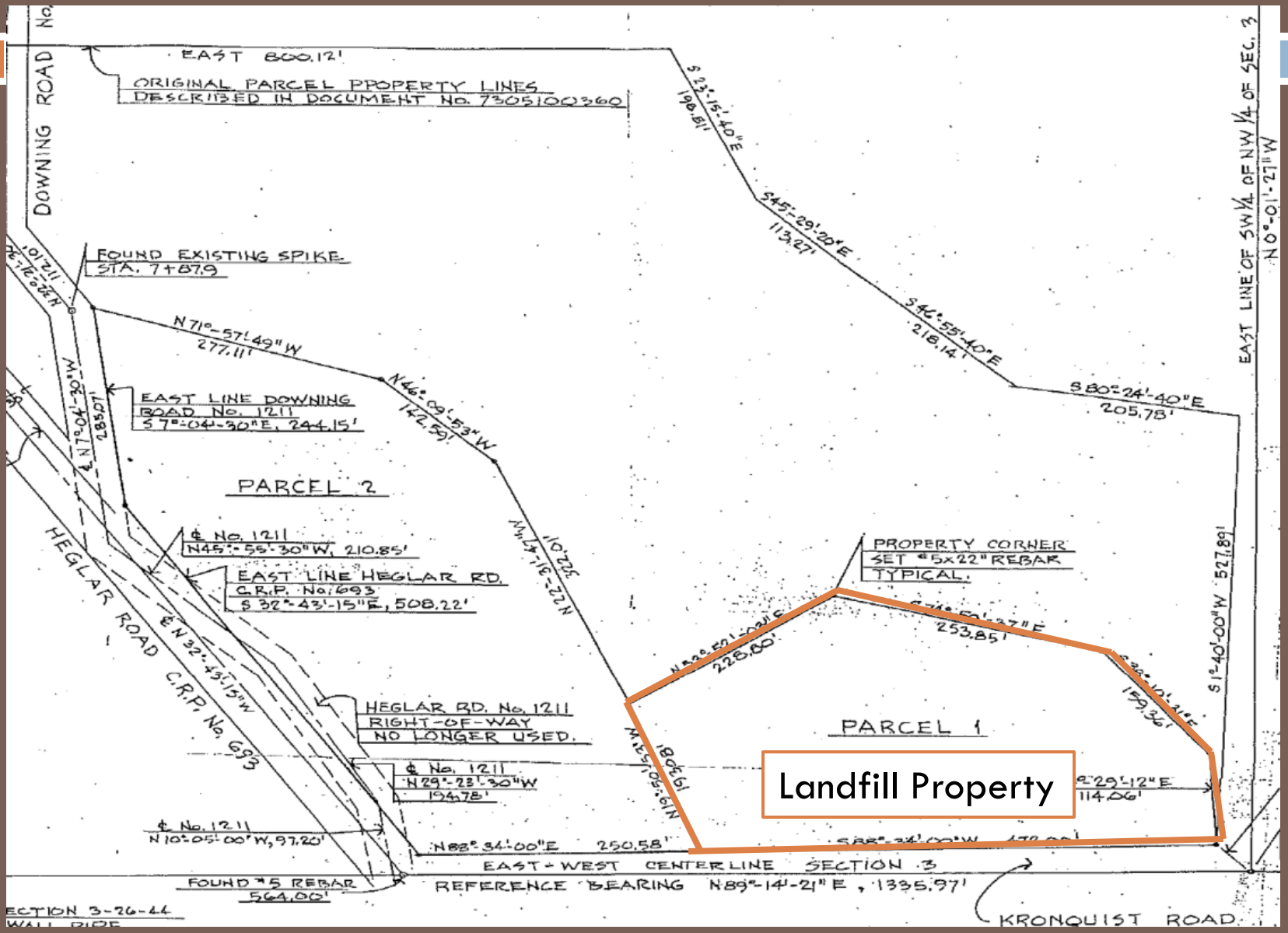
- The 1,000 foot setback restrictions for drilling domestic wells was adjusted based on the landfill parcel size versus entire site parcel size – reducing the number of affected residents

WHAT IS THE CLEANUP PROCESS?



STATE ENVIRONMENTAL POLICY ACT (SEPA) and DETERMINATION OF NON-SIGNIFICANCE (DNS)

LANDFILL PROPERTY



THE LANDFILL (DROSS SITE)

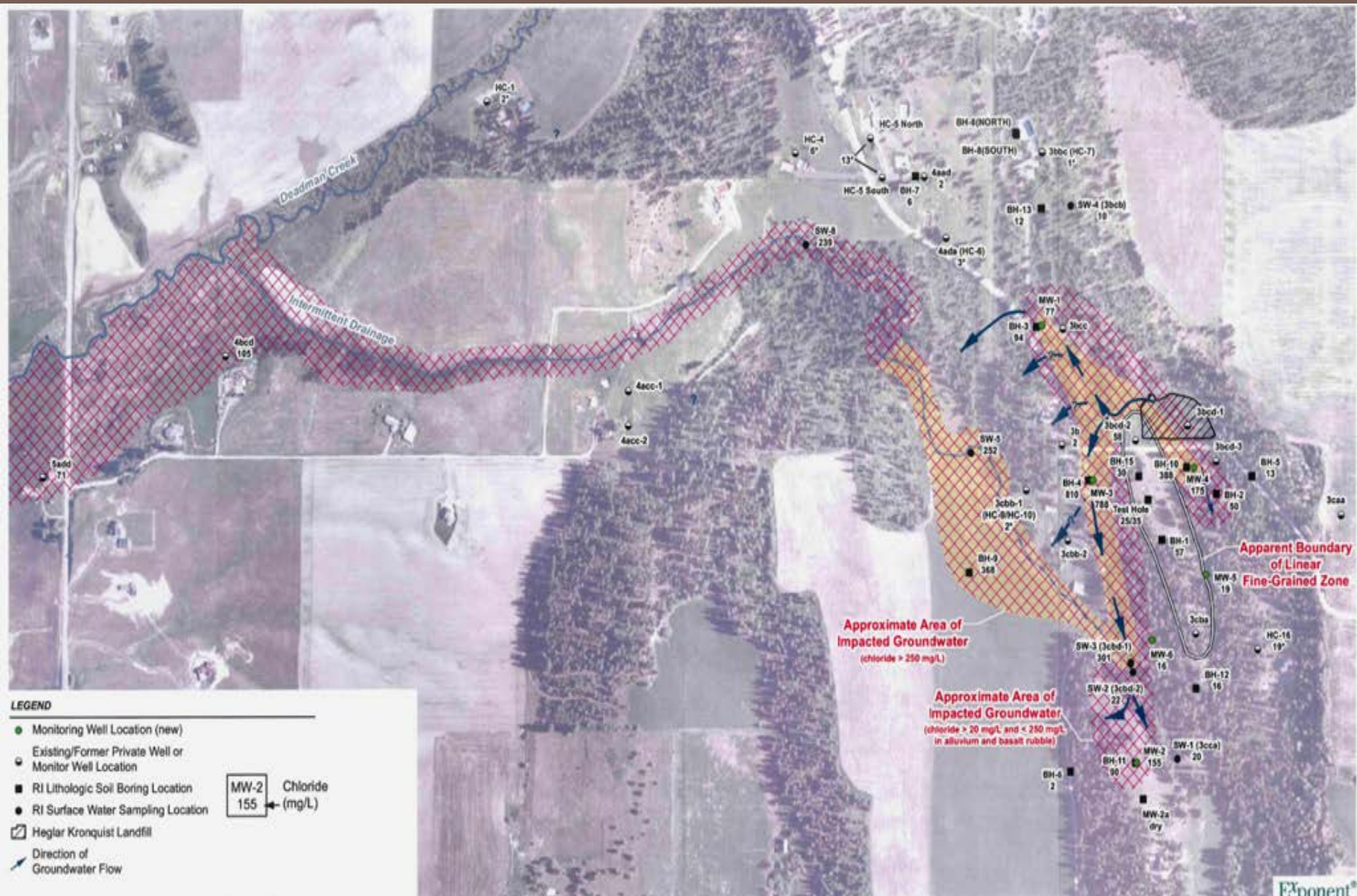
REMEDIAL INVESTIGATION

FINDINGS

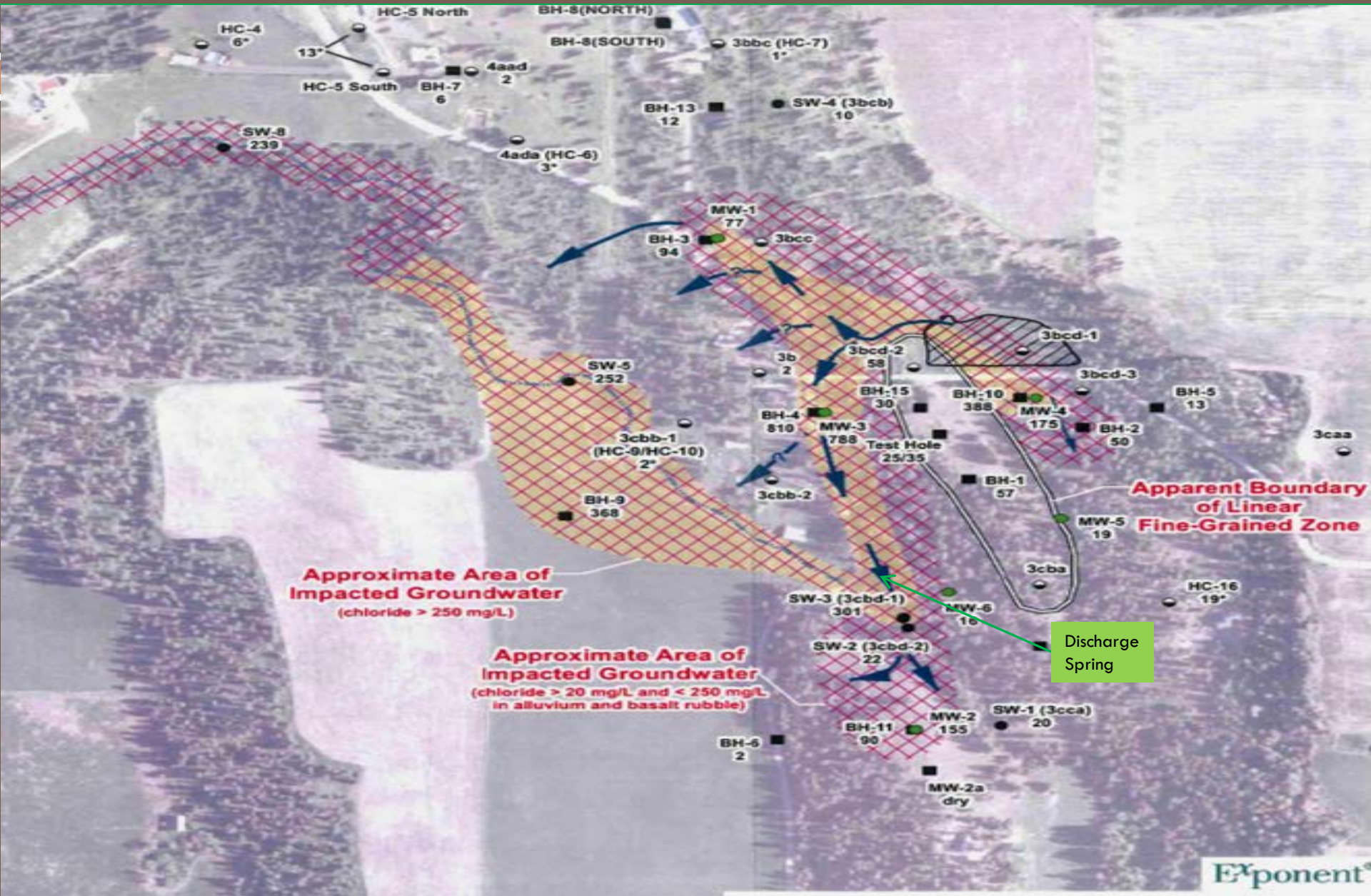
- NO AIR IMPACTS
- NO DRINKING WATER WELL IMPACTS

- CHLORIDE AND NITRATE CONCENTRATIONS IN SHALLOW GROUNDWATER AND SURFACE WATER EXCEED STATE STANDARDS
- NITRATE ALSO COMES FROM OTHER AREA SOURCES

REMEDIAL INVESTIGATION



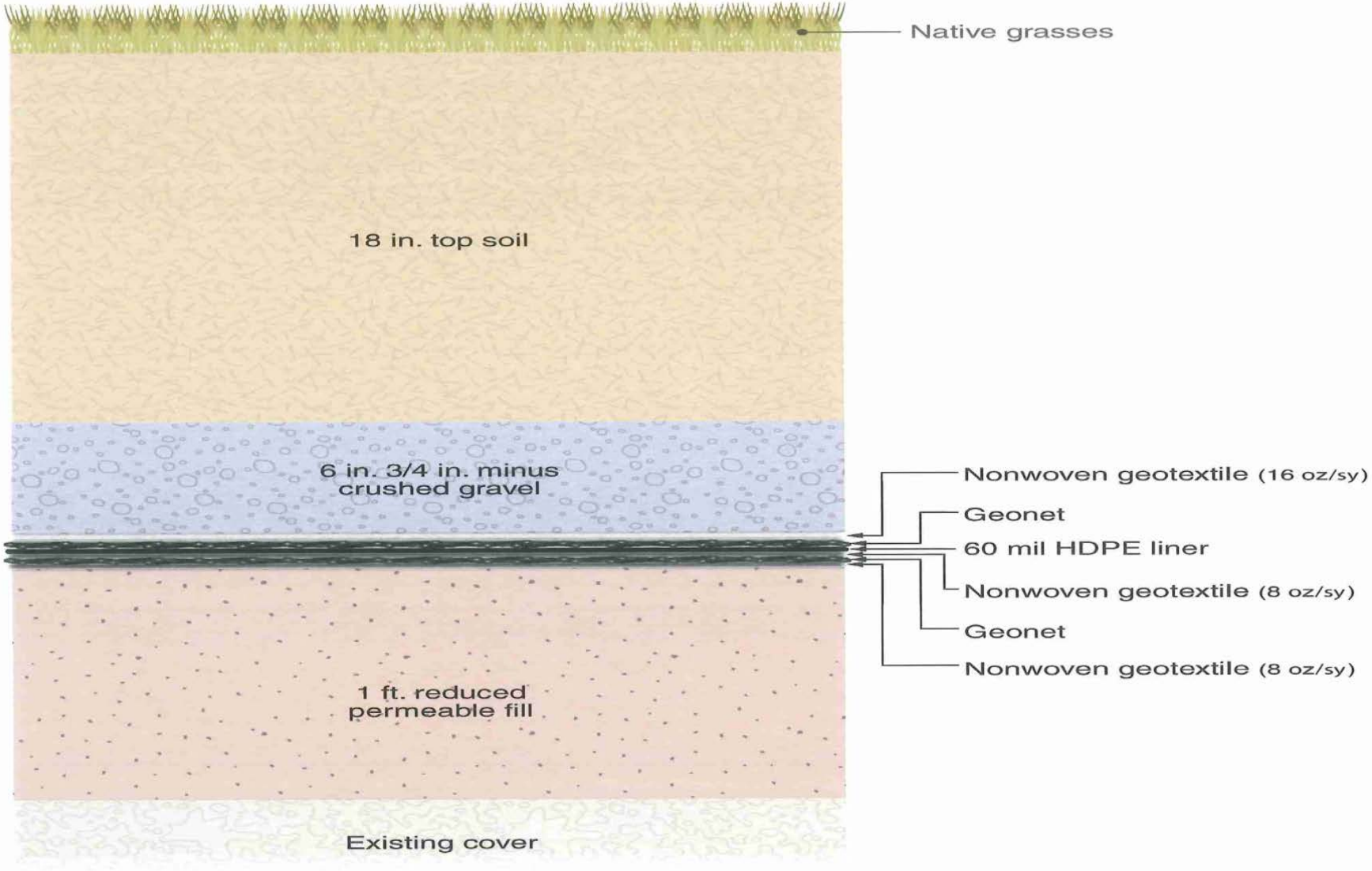
CHLORIDE CONCENTRATIONS



FEASIBILITY STUDY ALTERNATIVES

- ALTERNATIVE 1
  - Removal and Off-Site Disposal
  - Dispersion/Dilution
  - Compliance Monitoring
- ALTERNATIVE 2
  - Cap Enhancement
  - Institutional Controls
  - Dispersion/Dilution
  - Compliance Monitoring

PROPOSED CAP



ECOLOGY'S DRAFT CLEANUP ACTION PLAN (DCAP)

The DCAP is based on information from the RI/FS and identifies the following:

- Cleanup Levels
- Evaluation of remedial actions in FS
- Selected cleanup action/actions
- Other requirements

DCAP CLEANUP LEVELS

	GROUNDWATER	SURFACE WATER
CHLORIDE, mg/L	250	250
NITRATE, mg/L	14.4	14.4

WHERE COST FITS IN THE PROCESS

MTCA requires four criteria be met before the cost analysis can be completed

Then disproportionate cost analysis (cost analysis) may be the deciding factor on choice of cleanup

7 MTCA REQUIREMENTS for SELECTION of CLEANUP

1. Protect human health/environment
2. Comply with cleanup standards
3. Comply with applicable state /federal laws
4. Compliance monitoring

Alternatives 1 and 2 meet all four of these criteria

MTCA REQUIREMENTS (continued)

5. Use permanent solutions to the maximum extent practicable (cost analysis)
6. Reasonable restoration time frame
7. Consider public comments

PERMANENT TO THE MAXIMUM EXTENT PRACTICABLE

- Cost Analysis

  Protectiveness, permanence, cost, long-term effectiveness, management of short-term risks, technical and administrative implementability, consideration of public concerns

- Where two or more alternatives are equal in benefits, the department selects the least costly alternative that meets all 7 requirements.

COST ANALYSIS

CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2
PROTECTIVENESS	• Dross removed, leaching eliminated • Dross sent to landfill- may cause problems • Additional leaching may occur	• Dross contained, cap prevents leaching • Institutional controls ensure continued protection
	Similar	

COST ANALYSIS

CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2
PERMANENCE	• Permanent solution	• Not permanent solution • Dross would be contained
COST	•**$20M** **Extraordinary**	•**$1.9M** **Reasonable**

COST BENEFIT ANALYSIS (continued)

CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2
LONG-TERM EFFECTIVENESS	•Provides the greatest certainty since the dross would be removed	•Certainty depends on long term maintenance of cap and other institutional controls

Similar

COST ANALYSIS (continued)

CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2
MANAGEMENT OF SHORT-TERM RISKS	• Trucks hauling dross off-site (1860 trucks with dross, 448 trucks with excavated soil) •Noise •Ammonia/dust from dross and soil emissions •Increased leaching to groundwater **Greater Risk**	•Trucks hauling capping materials •Noise •Soil dust emissions **Lesser Risk**

COST ANALYSIS (continued)

CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2
TECHNICAL AND ADMINISTRATIVE IMPLEMENTABILITY	Dross Removal 1-2 years •Not very implementable, landfill may not accept dross; may require pre-treatment. •Controls for short-term risks difficult to carry out **Difficult**	Capping complete less than 1 year •Capping landfill is proven, reliable technology if properly designed, monitored, and maintained. •Very implementable •Controls for short-term risks easier to implement. **Easy**

COST ANALYSIS (continued)

CRITERIA	ALTERNATIVE 1	ALTERNATIVE 2
CONSIDERATION OF PUBLIC CONCERNS	• Addresses desire for removal of dross	• Addresses short-term risks and concerns

SUMMARY OF COST ANALYSIS

- Alternatives 1 and 2 provide almost the same overall benefits.
- When the disproportionate cost is factored in, Alternative 2 takes precedence.

MTCA REQUIREMENTS (continued)

	Alternative 1	Alternative 2
5.Permanent to the maximum extent practicable	Permanent	Yes
6.Reasonable Restoration Time Frame	Yes 2 to 5 years (longer if additional leaching occurs during excavation)	Yes 2 to 5 years
7.Consider Public Comments	Yes	Yes

SELECTED CLEANUP ACTION

- MTCA provides: where two or more alternatives are equal in benefits, the department selects the least costly alternative that meets the 7 requirements.

- Ecology selects Alternative 2, with additional protection requirements, as the cleanup action for the site.

SELECTED CLEANUP ACTION COMPONENTS

- Cap Enhancement-multi-layered cap
- Dispersion/Dilution of Groundwater
- Compliance Monitoring

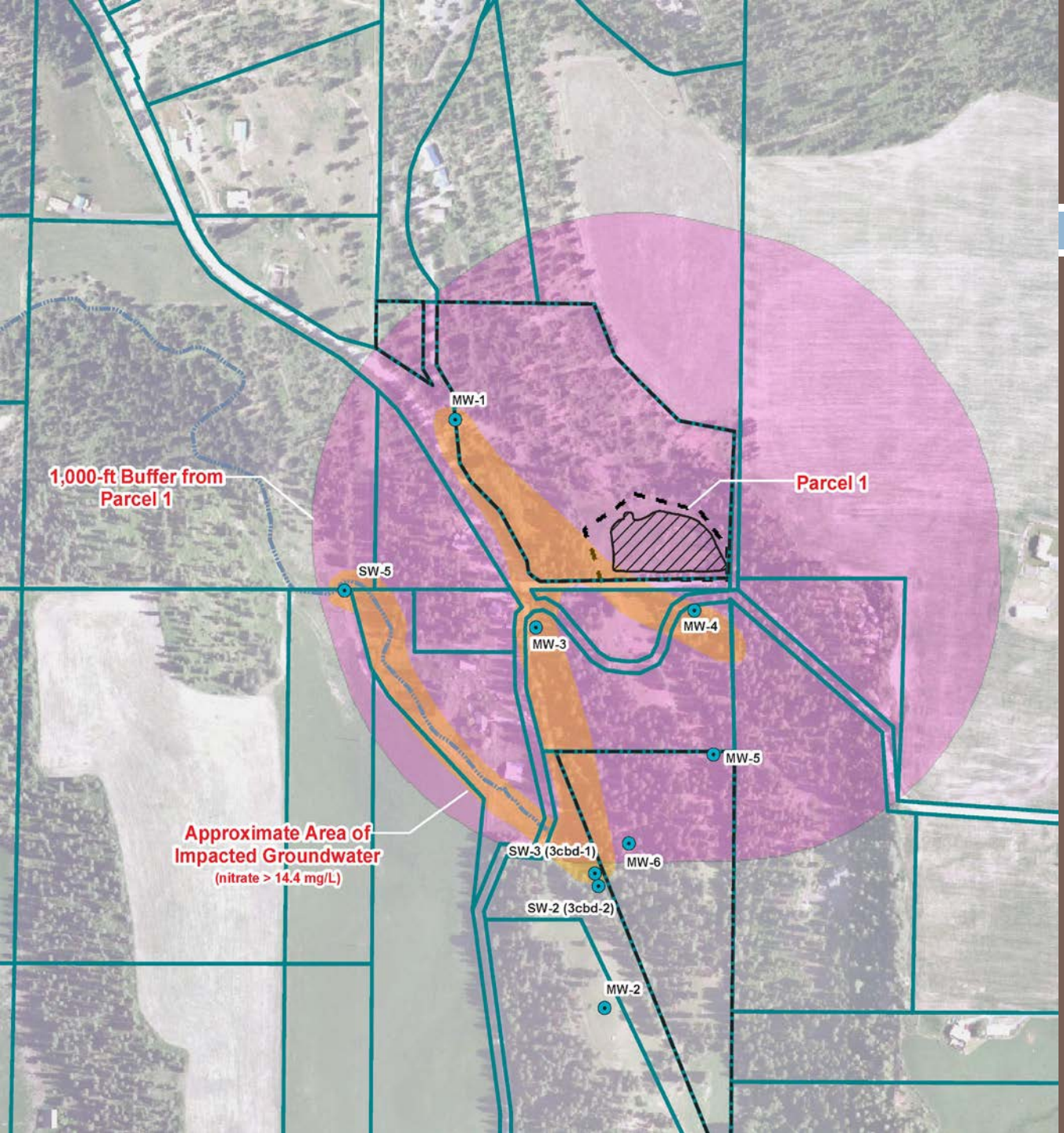
SELECTED CLEANUP ACTION COMPONENTS (continued)

- Institutional Controls
  - Fencing
  - Environmental covenant
  - Cap maintenance, monitoring wells maintenance
  - Signage
  - Financial Assurance
- Periodic Review (every five years)

ENVIRONMENTAL COVENANT

- Will stay with any current or future owner
- Recorded as part of the property deed to:
  - Inform any future owners of the condition of the property
  - Restrict activities of use of the property that could result in exposure of the contamination.

  (Ground water use restrictions will fall under WAC 173-160-171 enforced by Water Resources Program)



1000-FT GROUNDWATER USE RESTRICTION (WAC 173-160-171)

WHAT 'S NEXT?

- Responsiveness Summary
- Issue Final Cleanup Action Plan
- Negotiate legal document (Consent Decree)
- Provide public comment on draft Consent Decree
- Implementation of cleanup actions (2013 to 2014)

WHO CAN I TALK TO?

- Department of Ecology
  - Teresita Bala – site manager/questions
    (509) 329-3543 or tbal461@ecy.wa.gov
  - Dave George – site questions
    (509) 329-3520 or cgeo461@ecy.wa.gov
  - Carol Bergin – public involvement and to be added to the mailing list (509) 329-3546 or cabe461@ecy.wa.gov
- Spokane Regional Health District
  - Mike LaScuola – health-related questions
    (509) 324-1574 or mlascuola@spokanecounty.org

THANK YOU

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ECOLOGY
State of Washington