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Knowledge Transfer within the Wismut Environmental Rehabilitation Project

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Was something going on there back in the days??

Active re-use of the area of the former Lichtenberg open pit

Presentation outline

- Introduction, history
- Size and duration of the remediation project
- Approach and technical solutions for knowledge management
- Structures and contents, case demonstration
- Lessons learned

Legacies and radioactive residues (1945 – 1990)

- 5 Mines (≤ 1800 m depth)
- 1 Open pit (240 m depth)
- 60⁺ Waste rock dumps, low grade ore (Σ 325 Mm³)
- 2 Processing plants
- 7 Tailing ponds (6 km² area with Σ 178 Mm³)
- Material from clean-up areas









A landscape is changing its face ...
In-situ remediation of waste rock dumps

Dump #366, Schlema site

1994 1998

2000 2003 2012

Good to know about :

- Proof of the remediation success
  Comparison with the remedial goals
- Remaining re-use restrictions after coverage of contaminated material
- Long term experience, transfer of know-how

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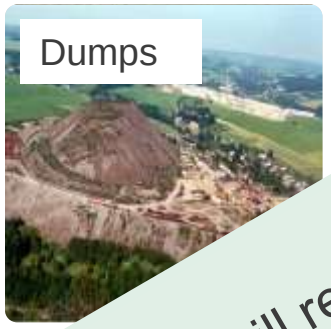
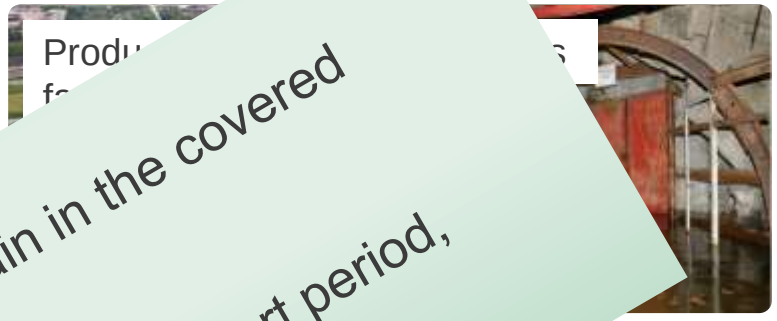
During a long time of remediation …





(1) Contaminated material will remain in the covered underground to a high extend

(2) Information will be forgotten within a short period, **if the access isn‘t an easy one.**

Kinds of

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- Sh
- Pictu
- …

rd discs
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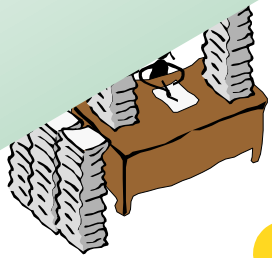
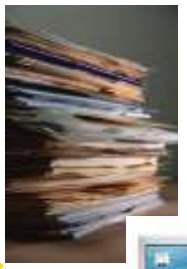
repository
- …





1993: 6.800 employees
2018: 1.000 employees

… 30 years later …?

Access - Initial Approach

1. Technical Data Base „AL.VIS/W“

Multidisciplinary Information system with GIS-Components

For daily work (emission control, remediation tasks, creating reports …)
For long term information about the objects
For preservation of remediation know-how

2. Archive

Assembling of documents ***after*** finishing the remediation object

()

- Collect information **shortly after** their generation
- Gather it in a technical data base on a common platform
- Link the different issues to each other
- Create „assistants“ for a simple and efficient search

Access - Revised Approach

1. Technical Data Base „AL.VIS/W“

Multidisciplinary Information system with GIS-Components

For daily work

(emission control, remediation tasks, creating reports …)

For long term information about the objects

For preservation of remediation know-how

2. Dual Archive (Paper + File)

- Establishment of a standardized RD
- Well defined storage rules
- Linked to AL.VIS/W
- Swiftly compilation of historical docs
- Ongoing import during remediation

- Collect information **shortly after** their generation
- Gather it in a technical data base on a common platform
- Link the different issues to each other
- Create „assistants“ for a simple and efficient search

Final Aim

for each of the 400 complex remediation documentations (RD)

1 physical availabe **Original** (or a copy),
well sorted at the final archive in Chemnitz

Paper RD

1 Metadata Record inclusive an exact storage notation
1 Electronic Document of the physical specimen

- *complete*
- *true*
- *long-term valid (pdf/A)*
- *appropriate for full-text search (→ OCR)*
- *performant searchable (size!)*

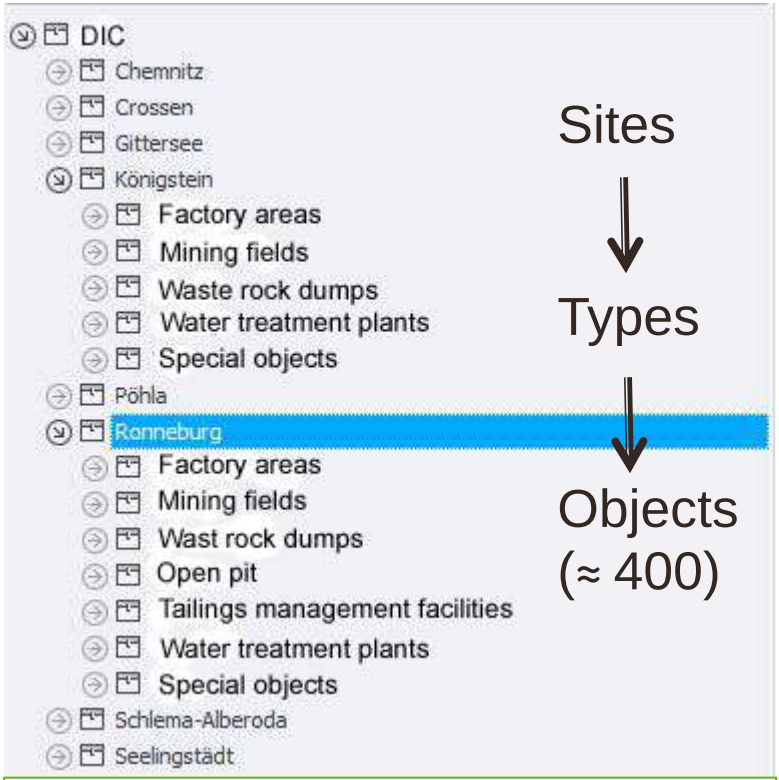
Electronic RD

Intuitive user-friendly Interface (Archiving is not an end in itself !)

Documents, embedded within the original context

Standardized Content (electronic + paper)

Hierarchic structure



Provided folder architecture ⟷ **Standardized issues**

Standardized registers 1 - 17

1. General information, vita
2. Planning and application documents
3. Administrative decisions
4. Self management reports/history
5. Internal supervising reports
6. External supervising reports
7. Reports from subcontracted services
8. Mine surveying documents / mine plans
9. Protocols
10. Photo documentation
11. Legally binding building acceptance
12. Examiners reports
13. Planning maintenance /after care
14. After care / long term management
15. Final certificate
16. Final documentation
17. Miscellaneous

Department of Information Management (DIM)

- Definition of achievable, but sophisticated goals (content, technical realization, personal conditions)
- Study experiences at similarly running projects (US-DOE, CAN, FRA…)
- Analysis of the existing portfolio in Wismut, developing of solutions

1 Establish-ment DMS-properties + folder structure √

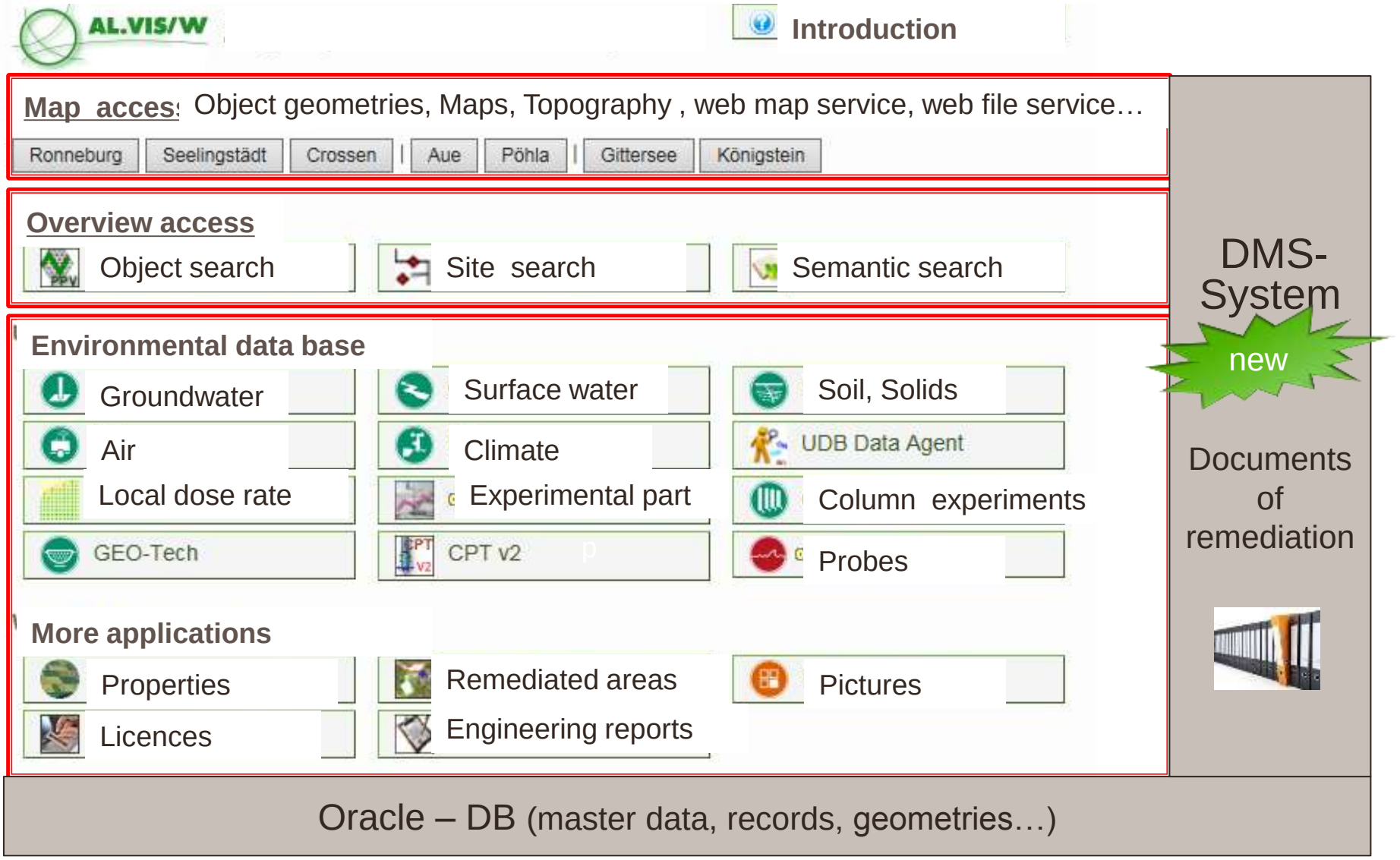
2 Definition workflow + instruction ……

- Consolidation photo and document stocks
- Implementation scan hubs
- Pdf/A-software
- Staff training
- Rules for QS
- Tap of new generated documents

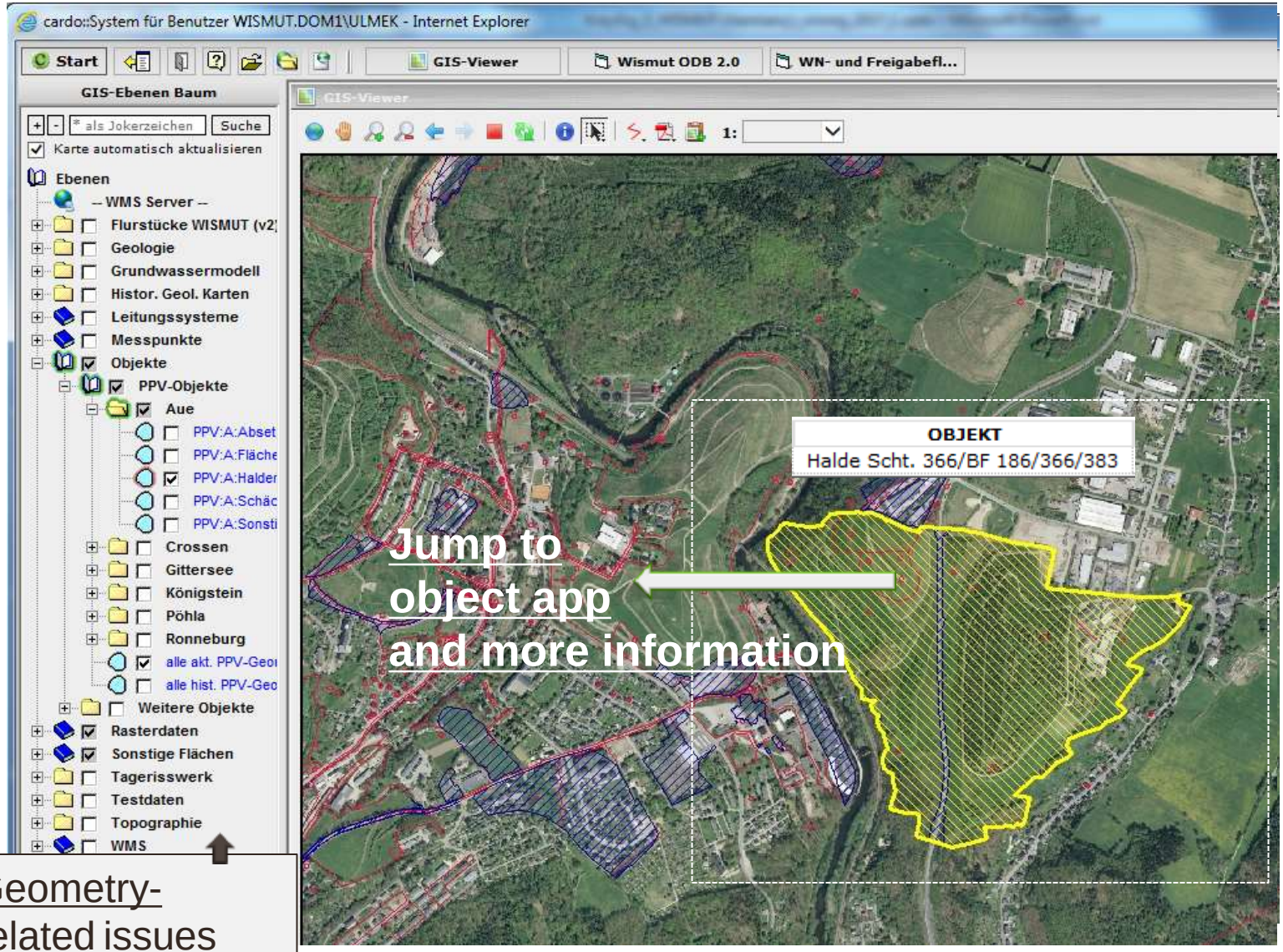
3 Link to user interface AL.VIS/W √

4 Exe-cution !!

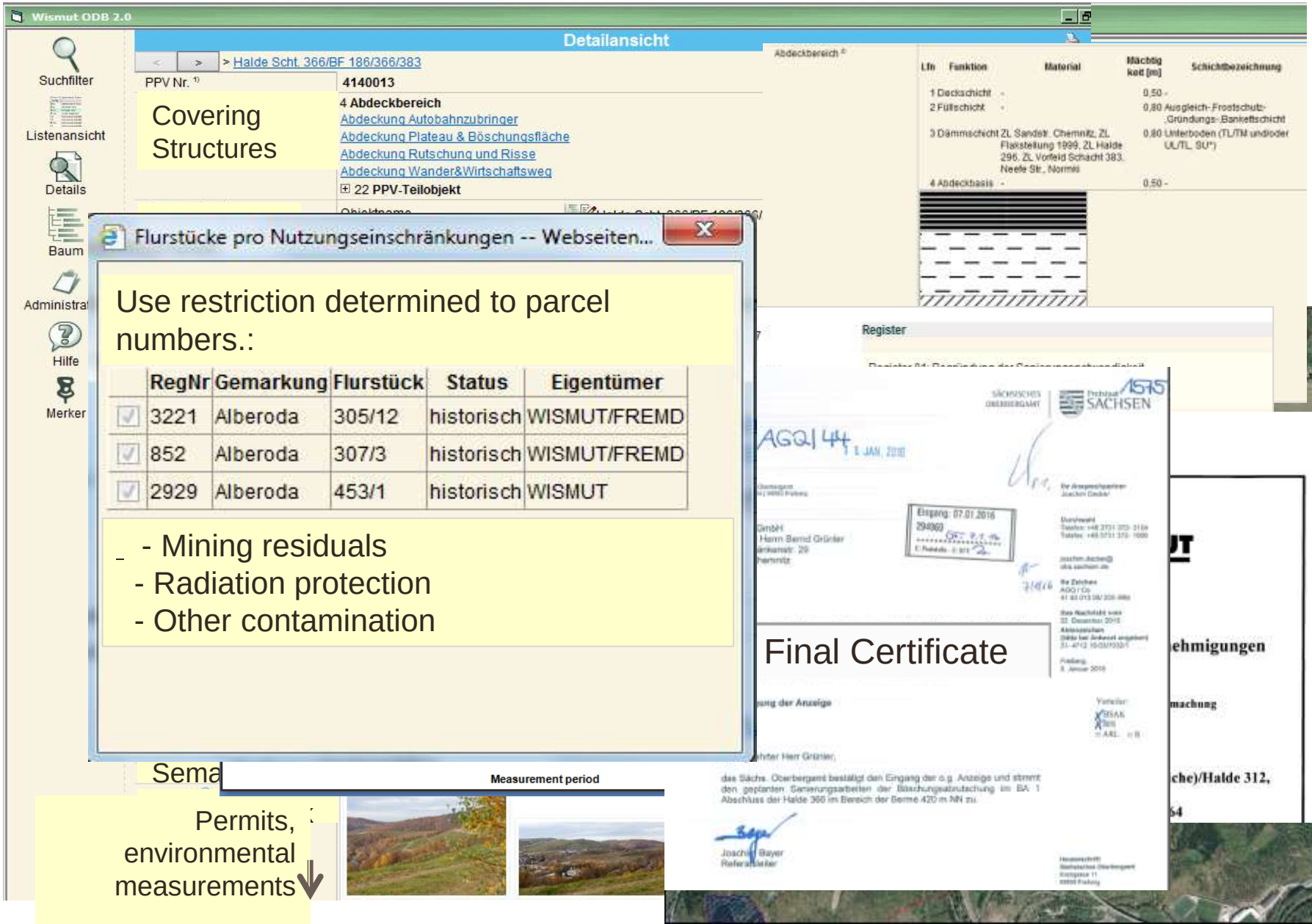
How does it look like - User Interface ALVIS/W



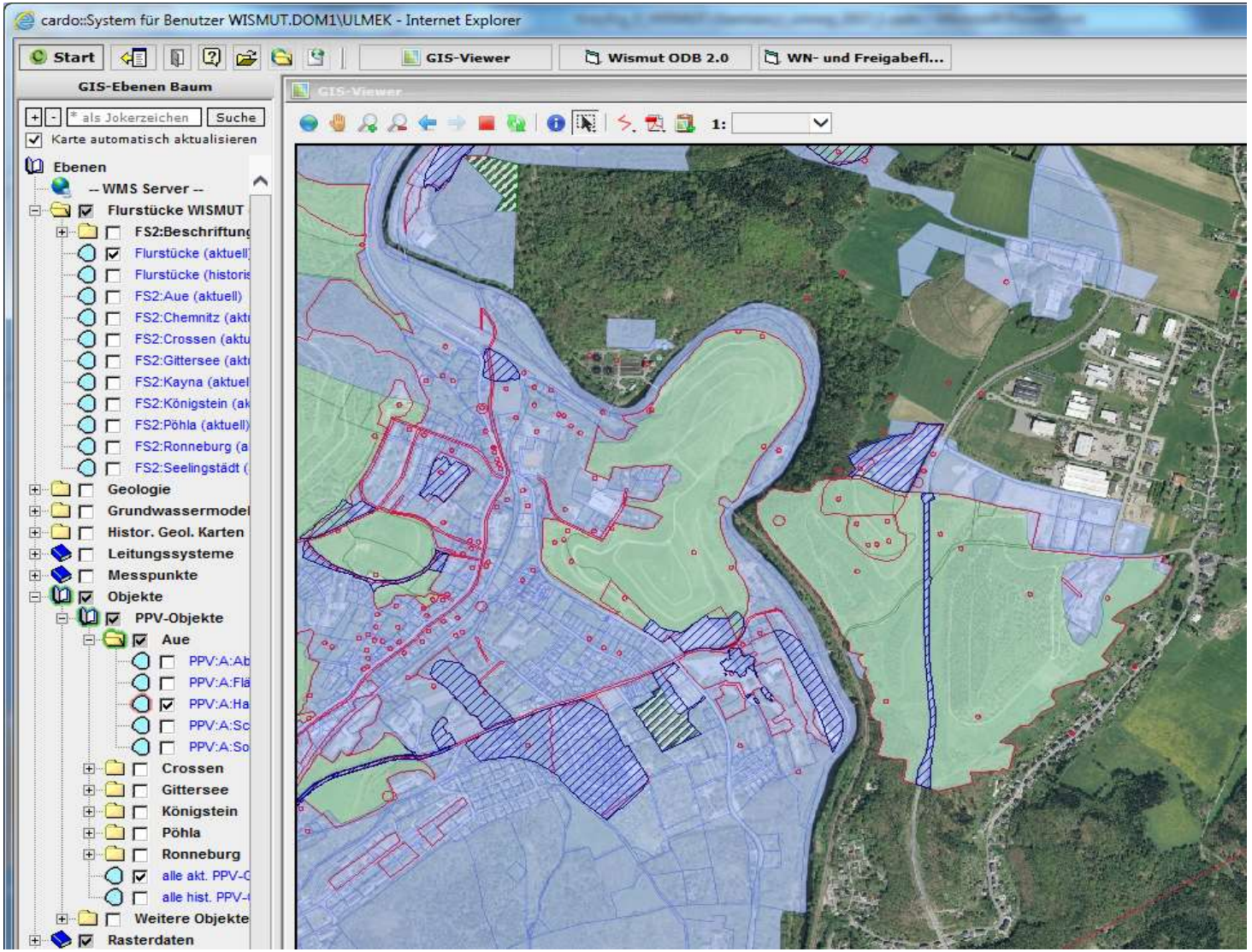
Map Access


cardo::System für Benutzer WISMUT.DOM1\ULMEK - Internet Explorer
Start
GIS-Viewer
Wismut ODB 2.0
WN- und Freigabefl...
GIS-Ebenen Baum
GIS-Viewer
Suche
Karte automatisch aktualisieren
Ebenen
-- WMS Server --
Flurstücke WISMUT (v2)
Geologie
Grundwassermodell
Histor. Geol. Karten
Leitungssysteme
Messpunkte
Objekte
PPV-Objekte
Aue
PPV:A:Abset
PPV:A:Fläche
PPV:A:Halder
PPV:A:Schäc
PPV:A:Sonsti
Crossen
Gittersee
Königstein
Pöhla
Ronneburg
alle akt. PPV-Geo
alle hist. PPV-Geo
Weitere Objekte
Rasterdaten
Sonstige Flächen
Tagerisswerk
Testdaten
Topographie
WMS
OBJEKT
Halde Scht. 366/BF 186/366/383
Jump to object app and more information
Geometry-related issues

Object Access



Map Access→ Information system for legacy management



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Summary, lessons learned…

- Environmental remediation projects cover a wide range of issues over a long period (Wismut: 2045 ff)
- There will partly remain contaminated material covered in the underground → Legacy management necessary !

- Preservation of knowledge and know-how in a dual way:
  paper work + intelligent and easy accessible electronic system
- Look with the perspective of future user generations.
- Begin early …
- Don‘t underestimate the efforts, which are necessary!
  (Workflow organization , quality assurance, maintenance of technical standards, soft skills…)

Was something going on there back in the days?

Many thanks for your attention !