MILJØOPPRYDDING PÅ VALLØ

ERFARINGER SÅ LANGT

Presentasjon for Miljøringen

13.November 2018

Maren Hjulstad og Lars S. Skaare, JV VEIDEC ANS

1. Overview
2. Complexities
3. Facts and Figures
4. Challenges
5. Early Learnings

VEIDEKKE DEC
JOINT VENTURE

JV VEIDEC

Integrated Joint venture (50/50)

VEIDEKKE Entreprenor – Norwegian Contractor and

DEME ENVIRONMENTAL CONTRACTOR (DEC) – Belgian Contractor and part of the DEME-group

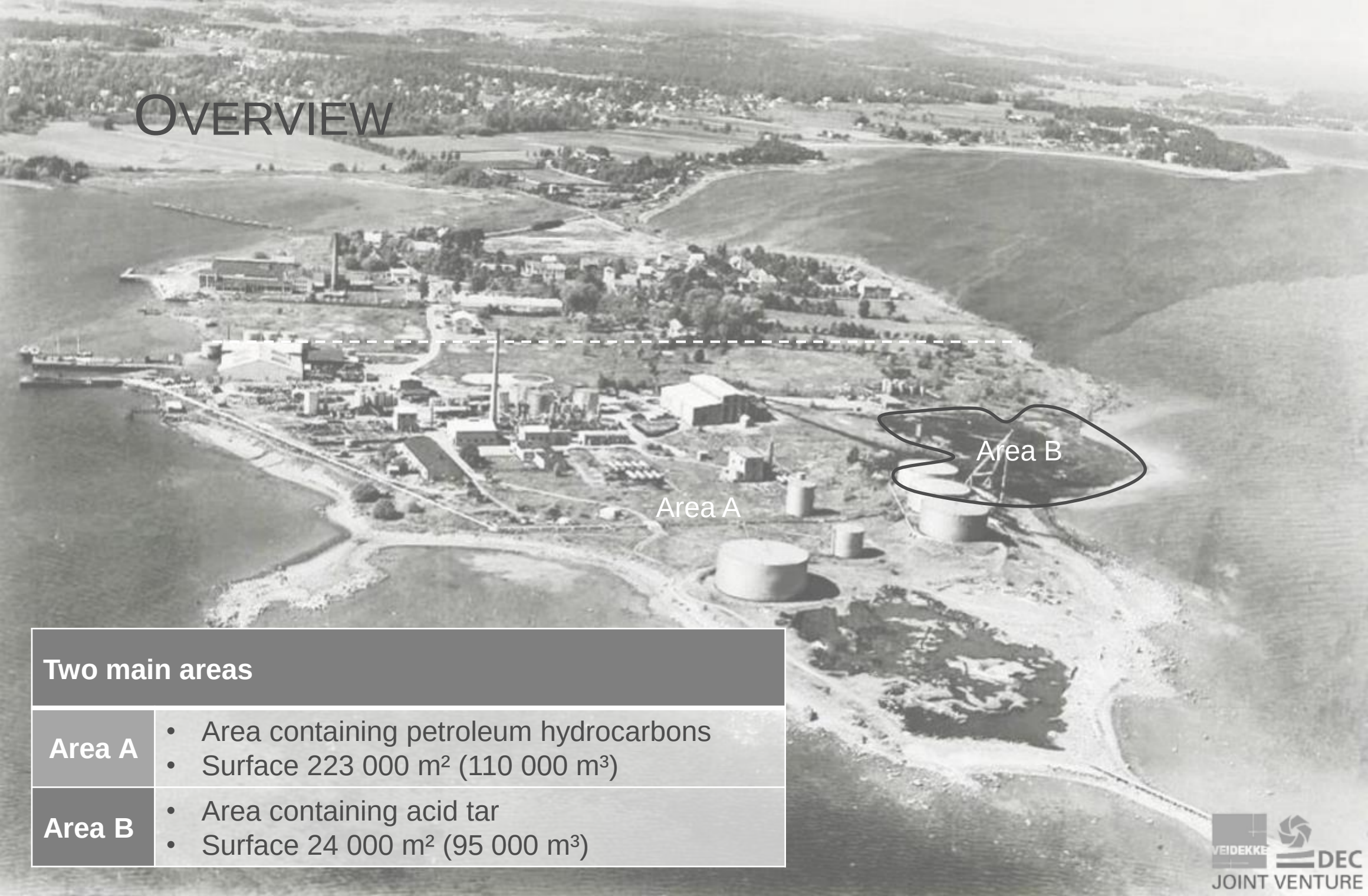
Partnering **local contracting competence** with **experienced environmental contracting – the partnership was to benefit from DEC acid tar's experience**

ACHIEVEMENTS 2018

- **250 000** work hours – **0** loss time injuries
- On schedule to meet completion date of June 2019

1. OVERVIEW

OVERVIEW



Two main areas	
Area A	• Area containing petroleum hydrocarbons • Surface 223 000 m² (110 000 m³)
Area B	• Area containing acid tar • Surface 24 000 m² (95 000 m³)

VEIDEKKE DEC
JOINT VENTURE

2. COMPLEXITIES

COMPLEXITIES

- Presence of UXO’s
- Gas emissions
- Excavation below the sea level
- Neighbors and local community
- Complex waste materials
- Legislation regarding waste and soil remediation
- Project scale

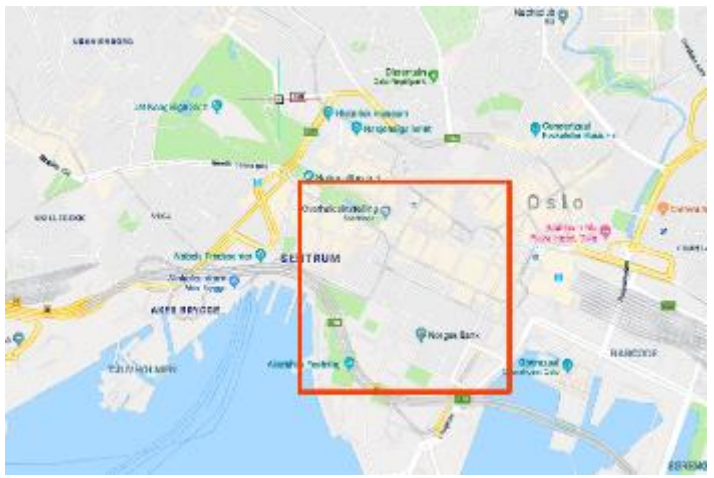
VEIDEKKE DEC JOINT VENTURE

3. FACTS AND FIGURES

FACTS AND FIGURES

Total amount extracted: 600 000 tonnes

- 40 000 dumper movements (ca. 20 000 km)
- 2 500 piles of material (ca. 750 000 m² of storage, ca. size of historic city of Oslo)
- 2 700 samples and associated analytical testing










VEIDEKKE DEC
JOINT VENTURE

Facts and Figures

Total amount restoration: 150 000 tonnes (recycled) + 440 000 tonnes (import)

- 6 000 dumper movements and 15 000 trips by truck

Total amount removed: 440 000 tonnes (export)

- 70 shipments (ca. 40 000 nautical mile, trip of ca. 2x round the globe)
- 8 000 trips by truck (ca. 120 000 km, trip of ca. 3x round the globe)

Ca. 1 600 reports on materials (ca. 3 200 pages), ca. 500 reports on area








VEIDEKKE DEC JOINT VENTURE

4. CHALLENGES

CHALLENGES - WASTE CLASSIFICATION

Soil classification

→ Norwegian Guideline TA-2553/2009

- Applicable for reuse of materials **on site**
- Contains the 'tilstandsklasser'

Tilstandsklasse	1	2	3	4	5
Beskrivelse av tilstand	Meget god	God	Moderat	Dårlig	Svært dårlig
Øvre grense styres av	Normverdi	Helsebaserte akseptkriterier	Helsebaserte akseptkriterier	Helsebaserte akseptkriterier	Nivå som anses å være farlig avfall

Waste classification

→ avfallsforskriften Kapittel 11. Farlig avfall, vedlegg 2

- Applicable for disposal of materials **off site**
- Based on EU legislation (EC No 1272/2008)
- A lot of the types of oil used/produced on site contain the hazard statement H 350 (carcinogenity).
- Based on H 350, hazardous waste limit is 0.1%.

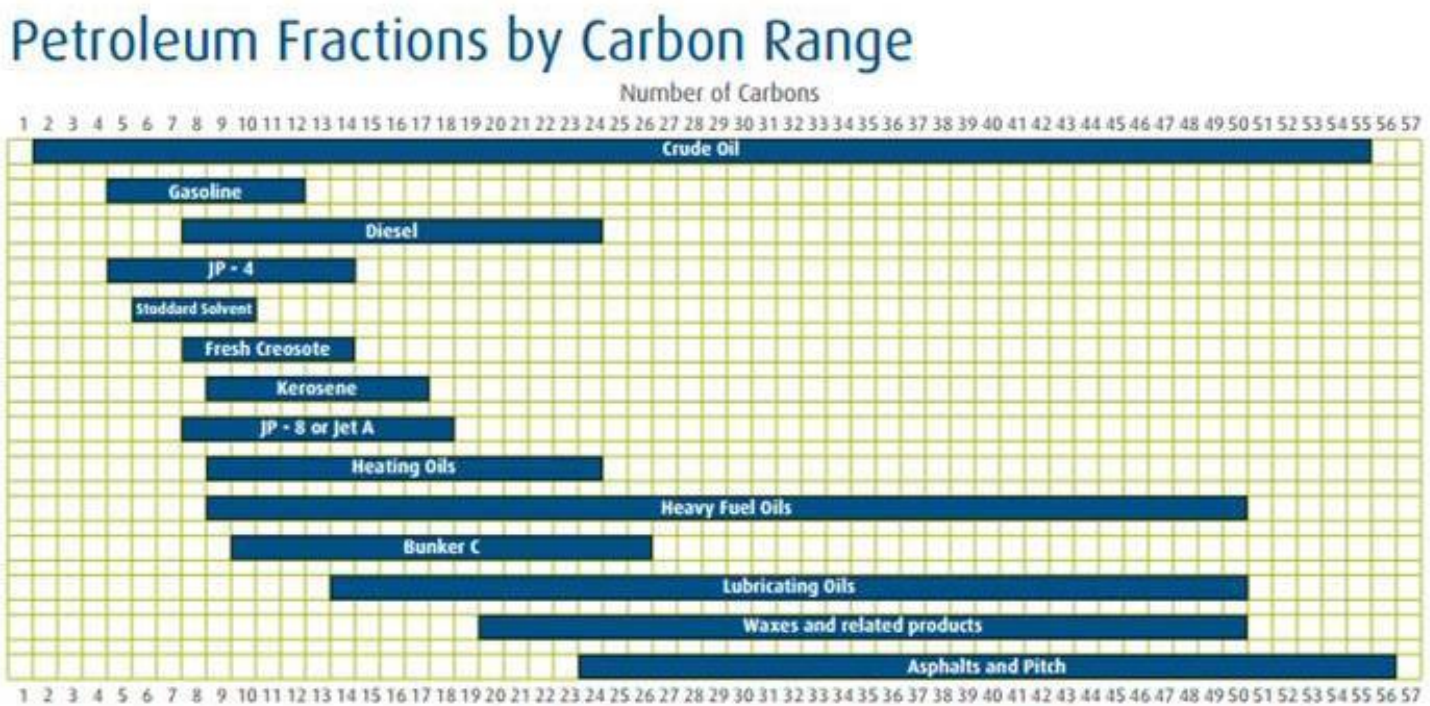
Closing Notes

- Importance of chemical fingerprinting and historical information during remedation design
- Authority involvement to provide guidance, however waste owner is responsible for classification (therefor importance of thorough understanding of legislation and use of expert contractors)

Engagement of authorities, consultants and final disposal sites to assure compliance and client reassurance

VEIDEKKE DEC JOINT VENTURE

CHALLENGES – DEFINITION OF OIL



- Oil is a complex mixture of chemical compounds (more than just aliphatic compounds).
- The table in TA-2553/2009 refers to alifater.

Closing Notes

Engagement of authorities, client and consultants to establish relevant monitoring criteria to come to desired endresult

VEIDEKKE DEC JOINT VENTURE

CHALLENGES – PRESENCE OF UXO'S

Valloy site was bombed at the end of WWII


Tønsbergs Blad

Flyangrepet på Valloy kostet over 50 norske sivile livet.

CHALLENGES – PRESENCE OF UXO'S

UXO handling procedure:

- Scrap, demolition debris and metallic interference → Layer wise excavation (non invasive survey techniques not suitable)
- Up to 50 contacts per grid per layer (layer = ± 30cm).
- Findings: fragments - partial bombs - intact bombs.
- Approach: detection and positive identification.
- Police (Military EOD-experts): disarming of the UXO

→ good cooperation: ENAS - JV VEIDEC - Police – Military - Neighbors

VEIDEKKE DEC JOINT VENTURE

CHALLENGES - REMEDIATION DESIGN

Challenge for development of the remediation design (delineation of contamination)

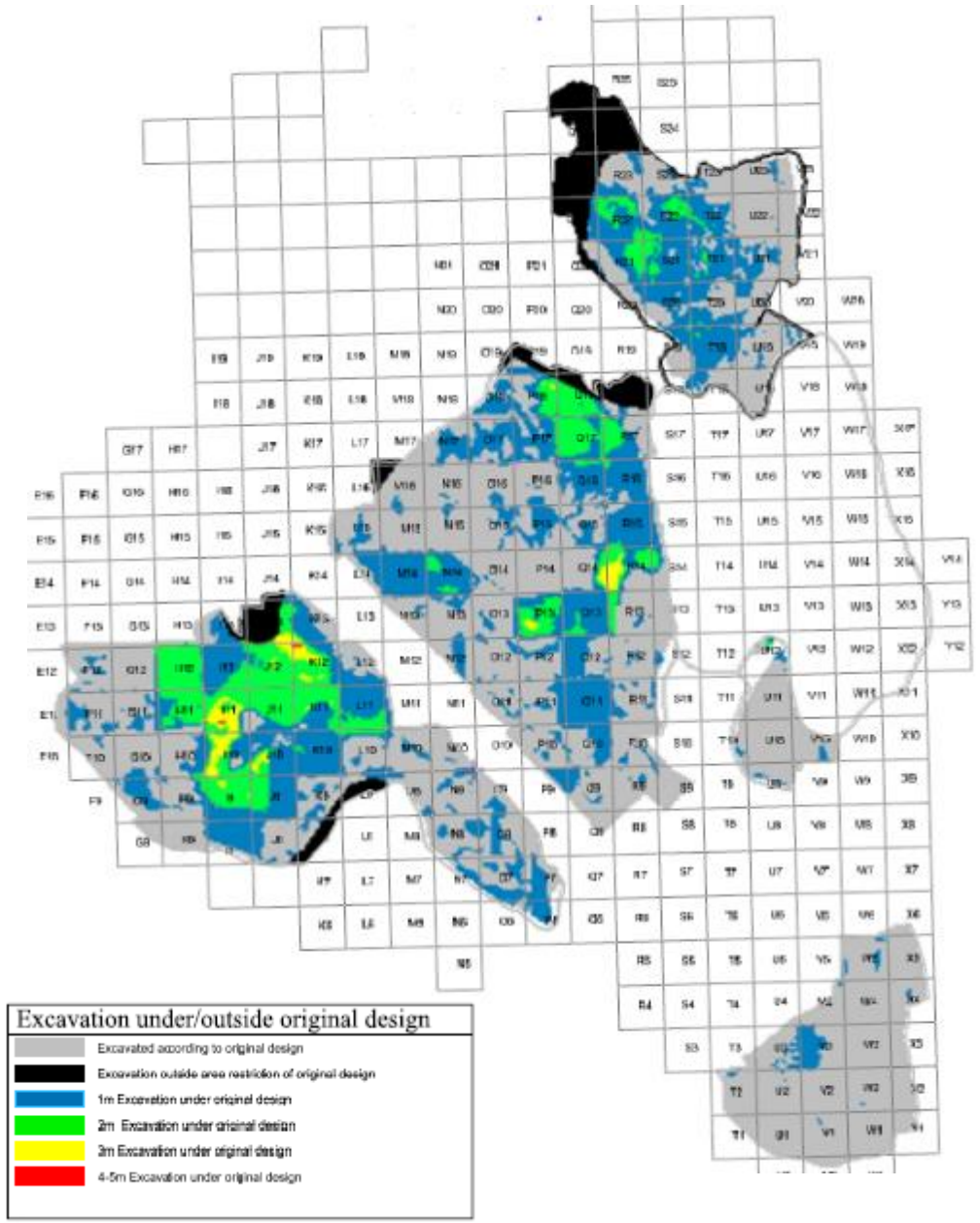
Site with a long industrial history

Site was bombed

No Demolition – of subsurface structures

VEIDEKKE DEC JOINT VENTURE

CHALLANGES - REMEDIATION DESIGN



- Complex matrix for remediation design
- Extensive investigation phase prior to the start of the works

- Status: additional excavation in area A of 50-60%
  - Design: 240,000 tonne
  - Today: 370,000 tonne
- Impact on planning, budget, outlet management
- Despite the significant increase in amounts → no or limited impact on the project end date

VEIDEKKE DEC JOINT VENTURE

CHALLENGES – MATERIAL MANAGEMENT

Challenge

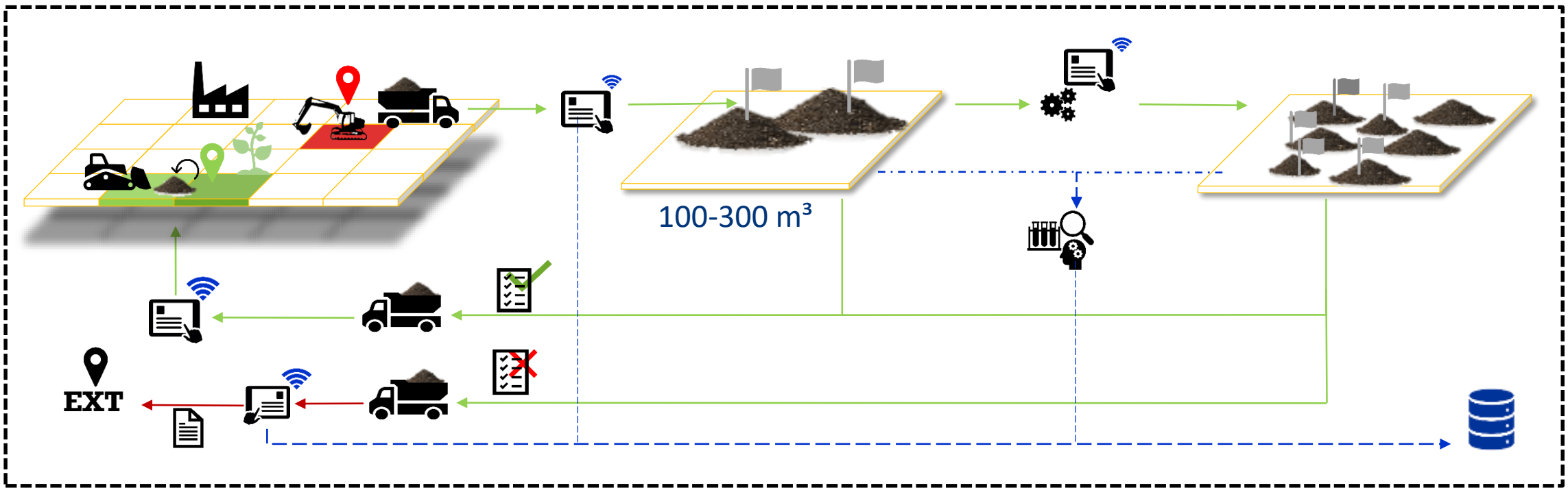
- Large scale of project – large volume of material
- Several (pre)treatment techniques and processing steps involving separation and use of additives
- Large amount of data related to materials (weights, origin, final disposal, analytical data, observations)
- Need for transparent documentation to all stakeholders (client, authorities, disposal sites) and internal overview
- Storage capacity

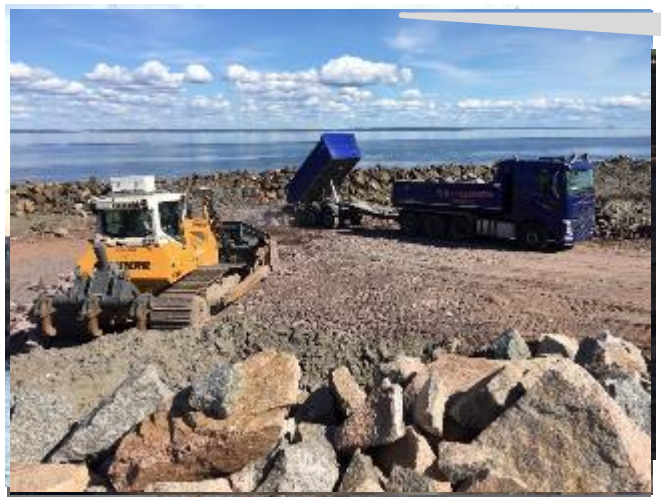
Solution

- Integrated data management system allowing project specific data reports developed by VEIDEC

VEIDEKKE DEC JOINT VENTURE

CHALLENGES – MATERIAL MANAGEMENT





- Quality reporting
- Progress reporting
- Aggregation of data for final summary report

VEIDEKKE DEC JOINT VENTURE

CHALLENGES - ACID TAR






- Hazardous | Difficult to Handle | Limited Outlet → Need for Pre-Treatment
- Treatment process: stabilization - neutralization process
- Every pile of 300m³ → unique recipe
- Final treatment:
  - lower caloric value: thermal desorption
  - higher caloric value: secondary fuel
- Shipment of the material out of Norway for final treatment
- International waste transfer → TFS - permits

VEIDEKKE DEC JOINT VENTURE

CHALLENGES – ENVIRONMENTAL IMPACTS

Monitoring program

- SO_2 perimeter
- VOC
- Odour
- Turbidity
- Chemical water quality
- Noise
- Dust

Mitigation measures

- Oil booms
- Wheel wash unit

VEIDEKKE DEC JOINT VENTURE

CHALLENGES – HUMAN HEALTH IMPACTS

Monitoring

- Personal SO_2 monitor
- MultiRAE for VOC
- Dust
- Noise
- Biomonitoring

Mitigation measures

- Over-pressure units on machines
- Hygiene unit - boot wash

VEIDEKKE DEC JOINT VENTURE

CHALLENGES – COMMUNITY IMPACT

- Informasjonsmøter for naboer, lokal presse og velforening i samarbeid med byggherren
- Utarbeidet og etablert varslingsrutiner for de nærmeste naboene
- God kontakt med Vallø og omegn historielag – www.vallohistorie.no
- Jevnlige møter med kommuneoverlegen og Miljørettet helsevern
- Møte med Presterud barneskole, rektor FAU og Skolepatruljen
- Foredrag og undervisning på videregående skole
- Egen internettside – www.veidec.info oppdateres ukentlig

Uke 43 - Vallø - JV VEIDEC ANS Page 1 of 2

Vallø – JV VEIDEC ANS

Vallø miljøopprydningsprosjekt utenfor Tønsberg

UKATEGORISERT

UKE 43

22. OKTOBER 2018 | PROSJEKTET VALLØ

Lasteskipet Fast JEF ligger til kai på Vallø nå, mandag. Skipet blir lastet i løpet av dagen med forurensede masser som skal til Nederland for termisk behandling.
Vi fortsetter innkjøring av rene stein-masser og 10 vogntog vil kjøre hele uken. Fra tirsdag blir det også utkjøring av forurensede masser med lastebil og henger til Lindum Taranrød. Total trafikkbelastning vil være 100 – 130 passeringer per dag. Det blir ellers graving, internttransport og sikting av masser. Pigging betong vil foregå det meste av uken i forbindelse med fjerning av behandlingsplattformen syd på anlegget.

https://veidec.info/uke-43-2/ 06.11.2018

5. EARLY LEARNINGS

EARLY LEARNINGS

- **Challenging** and complex project
- Client with strong **safety** drive and inate behaviour based safety culture
- Succes to limit the impact of the project towards **third parties**
- The data management system assures the **Quality** of the executed works
- Underestimation of **quantities** subject to remediation during the design phase (no surprise given the site was bombed and the general complexities of the site)
- **Legal framework** requires additional guidance
- Transformation of a non-obvious waste product **(Acid Tar)** into a useful product
- Mutual respect and understanding between all parties are key to succeed

VEIDEKKE DEC JOINT VENTURE