



Green Zinc Odda 4.0

Building the greenest and most advanced Zinc plant in the world

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In the beginning ...

- Det Norske Zinkkompani A/S company established in 1924 by Royale Asturienne de Mines
- Rationale 1924
 - Access to hydro power
 - Ice free harbour
 - Market for Zinc
- Production start in 1929
 - 40 kton of Zinc
 - 380 employees

1924



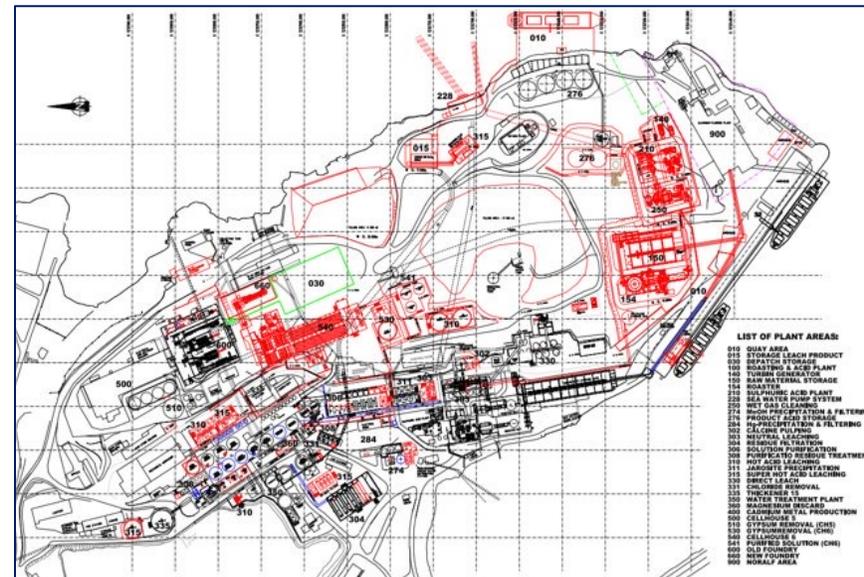
1950



The next step for Boliden Odda is defined

“Green Zinc Odda 4.0”

- Care for the environment
 - Lowest CO2 footprint Zn smelter in the world (green hydro power)
 - Mountain caverns for iron waste disposal
- The most productive zinc smelter
 - Productivity by scale boosted with automation and digitalization
 - Improved working environment and removal of DDD jobs¹⁾
 - From 660 ton/FTE → 1000 ton/FTE
- Increased value extraction from raw materials
 - Increased metal recoveries
 - New products – lead, silver and gold
- Effective logistics by sea and own ice-free harbor



Challenges

- Brownfield, tight industrial site
- >1000 persons at the site
- Build while operate

¹⁾ DDD jobs = "dirty, dangerous and dull jobs"

GZnO The project in a nutshell

Project objective

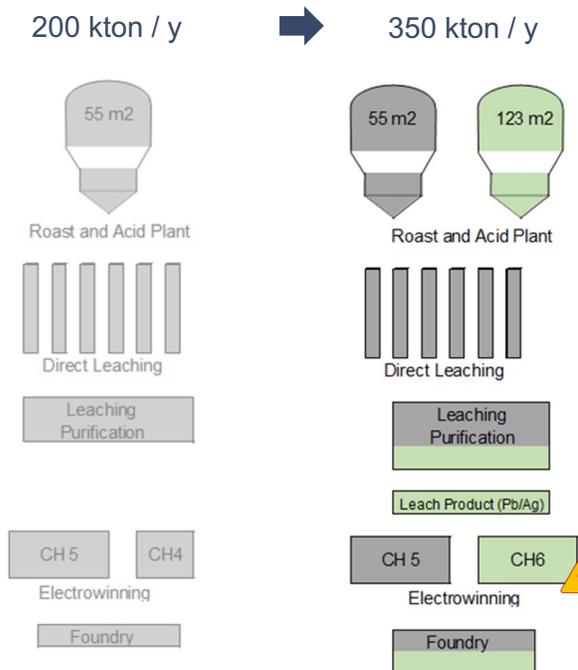
- Increase capacity : 200 kton / y → 350 kton / y

Start ramp-up

⚠ ... before summer 2024

Success factors

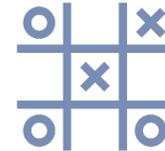
- | | | | |
|-------------------------------|--|---|--|
| A safety culture that matters | Proactive planning, control and coordination | Efficient decision making and agile problem-solving | Open and honest communication and good cooperation |
|-------------------------------|--|---|--|



Project planning - challenges

Proactive planning,
control and
coordination

- Combining plans from a different contractors, locations and systems
- Varying competence and planning experience
- Different views of what is really 'best practice' in terms of planning
- 🦋 ▪ Divergent expectations
- Building while operating



WIMZ **BOLIDEN**

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Our approach: building and maintaining a GZO 4.0 Integrated Plan

Proactive planning,
control and
coordination

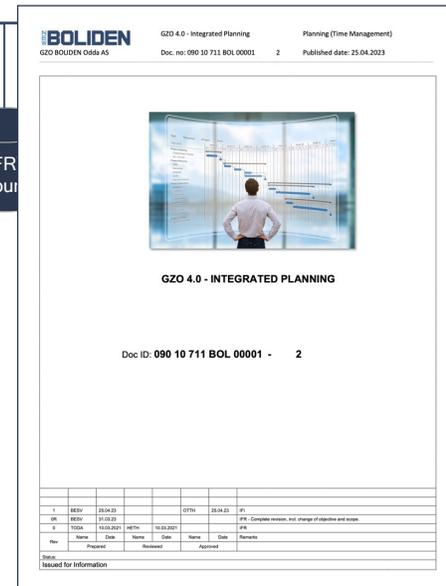
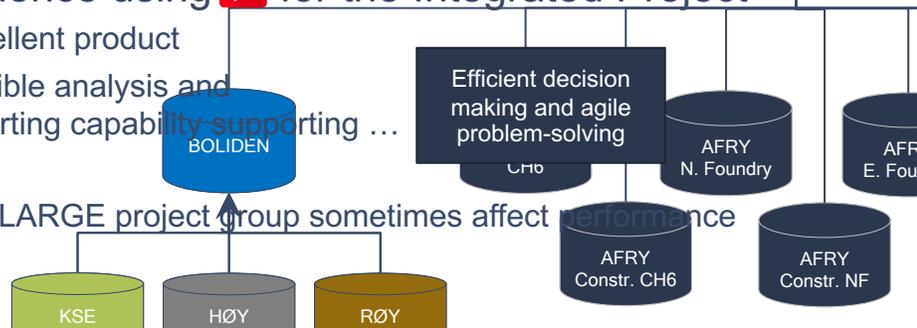
Integrated Plan – some key characteristics

- “Project Group” covering all projects (> 31000 activities)
- Cross project links
- Uniform coding across all projects
- Governance / ‘rules’ for the Integrated Plan documented



Experience using BOLIDEN for the Integrated Project

- Excellent product
- Flexible analysis and reporting capability supporting ...
- Our LARGE project group sometimes affect performance



BOLIDEN GZO 4.0 - Integrated Planning
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A few words on Safran Viewer

- Excellent product
- Provides end user with ‘live’ access to the Integrated Plan
- Introduced and training provided - usage is picking up



Safran Web Access (SWA)

Proactive planning,
control and
coordination

Progress reporting



- Weekly – at cut-off
- 500+ activities due for progress update every week
- Involves ~70 SWA users - on-site and remote contractors



Experience

- Solid and positive feedback from users

Report library

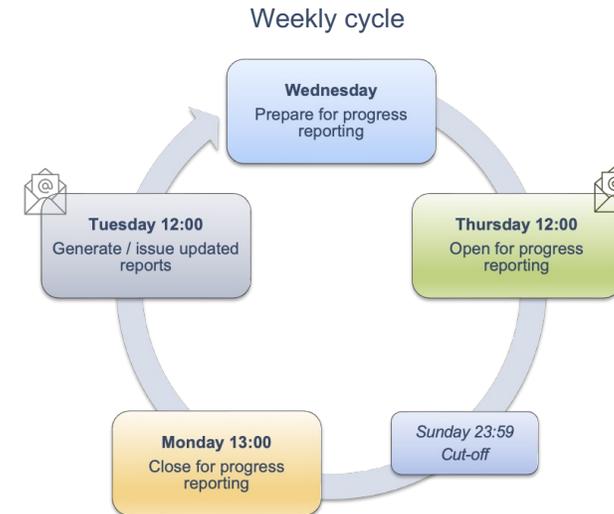


- Approx. 120 reports produced weekly
- ... from ~ 15 'report packages' in
- ... to 21 SWA folders
- Distributed in SWA to ~ 150 users



Experience

- The 'tile based' menu and folder structure needs overhaul ...
- Sadly, we have been chasing bugs – and we still do



🍌 Key learning points

- Avoid being too detailed too early
 - You might focus on the ‘wrong detail’
- In a multi-project environment – establish a common code (‘Userfield’) set
 - ... and have everyone stick to it
- Develop a governance scheme for the planning
 - Document it – and enforce the rules
- Advocate a culture for ~~the plan~~ planning
 - “Plans are nothing – planning is everything” Dwight D. Eisenhower
- Aim the planning for analysis and decision support
 - Less pure data collection and reporting



**We are building the greenest and
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Thank you
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