

## Large Extensions of Sugar Factories

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**NIRO-DDS A/S**

## ANKLAM SUGAR FACTORY

Mecklenburg/Vorpommern, Germany

Any large extension of a sugar factory is problematic as such a project requires more time than that available between two campaigns.

In 1991 DANISCO (previously known as DDS) acquired eight former East German sugar factories and decided to reduce their number to only one with a capacity of 10,000 TBD.

The capacity of the existing factory in 1991 was 3,000 tons beets per 24 hours.

In the following years the capacity was and will be increased as indicated below:

1992:	5,000 TBD
1993:	8,000 TBD
1994:	10,000 TBD

The shutdown of the seven factories follows a sequence maintaining a gross slicing capacity of 10,000 TBD every year.

The quality of sugar made in the 94 campaign will be EC2.

The renovation and reconstruction work is performed during the off-season from January to September, including starting-up before the 92, 93 and 94 campaigns.

In the 1992 campaign the following factory sections were completed and started up:

- \* Slicing: Four beet slicing machines
- \* Extraction: One 3,600 t diffuser
- \* Pulp pressing: Three beet pulp presses
- \* Juice purification: Juice purification plant with eight first carbonation filters and six second carbonation filters
- \* Evaporation: Two 2,500 m<sup>2</sup> Robert evaporators (1A and 2A)
- \* Sugar drying: Two sugar drying screws

In the 1993 campaign the following factory sections will be completed and started up:

- \* Beet reception: Three weighbridges
- \* Drum washing for dry intake of beets
- \* Mechanical water treatment plant
- \* Pulp pressing: One press
- \* Pulp drying: One steam dryer, three presses, one pellet cooler
- \* Lime kiln: One lime kiln
- \* Lime sludge pressing: Three press chamber filter presses  
Lime sludge storehouse, approx. 1,100 m<sup>3</sup>
- \* Evaporation: Extension to six-effect evaporation as indicated below:
  - 1 1,500 m<sup>2</sup> Robert evaporator (1B)
  - 1 1,500 m<sup>2</sup> Robert evaporator (2B)
  - 1 2,000 m<sup>2</sup> Robert evaporator (3B)
  - 1 1,500 m<sup>2</sup> Robert evaporator (3B)
  - 1 4,000 m<sup>2</sup> falling-film evaporator (4)
  - 1 3,000 m<sup>2</sup> falling-film evaporator (5)
  - 1 3,000 m<sup>2</sup> falling-film evaporator (6)
- \* Thick juice storage: 50,000 m<sup>3</sup> storage
- \* Sugar storage and delivery: 45,000 t silo, 3,000 t conditioning silo, sugar delivery plant
- \* Steam supply: Two steam boilers, each 60 t - 92 bar/525°C  
one summer boiler, 10 t - 9 bar,  
boiler feed water plant
- \* Power production: 15 MW turbine

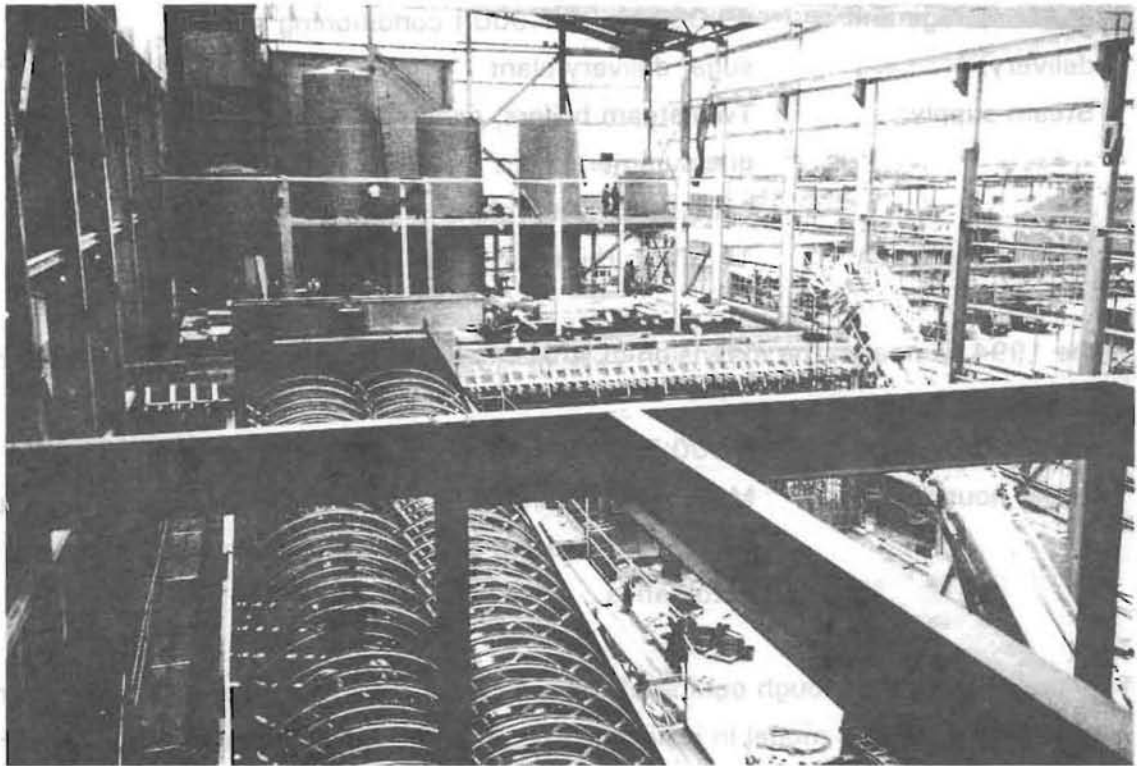
In the 1994 campaign the extension of Anklam sugar factory will be completed with:

- \* Extraction: 3,000 TBD diffuser
- \* Sugar house: Modernization and automation of boiling scheme, vacuum pans with agitators and process controlled pan boiling automatics.

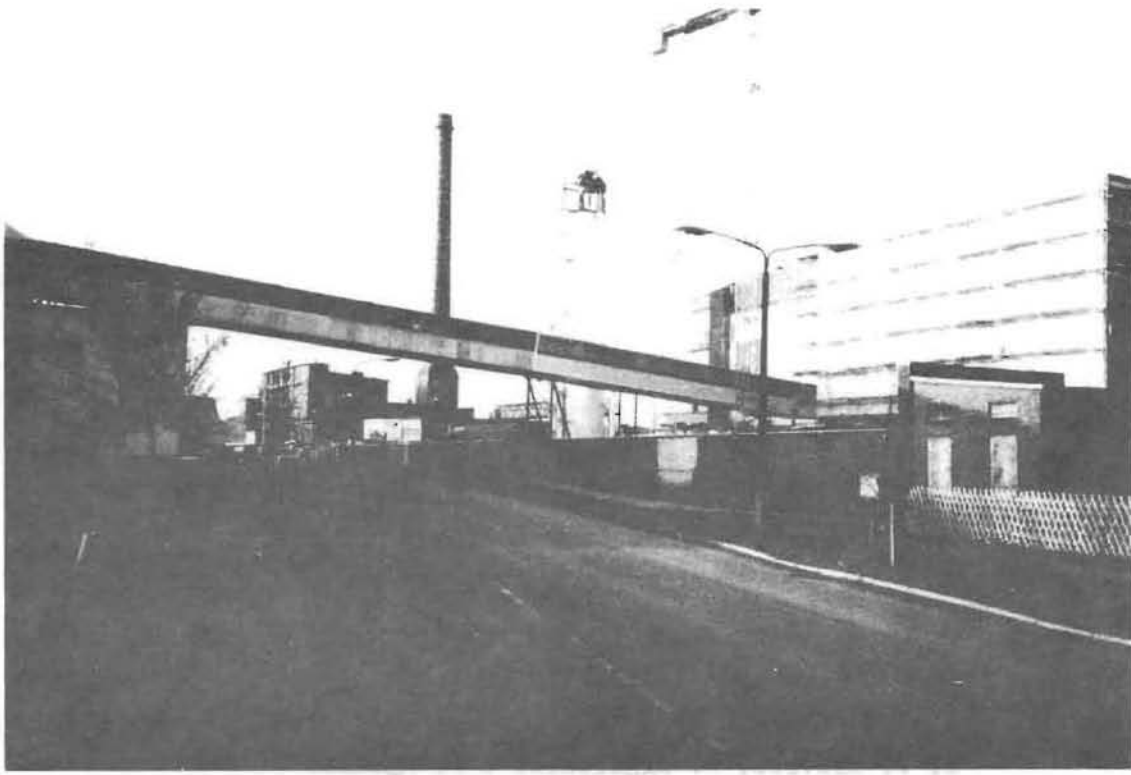
The above provides a rough outline of the principles of extension applied at Anklam, which may serve as a model in other projects of extension and renovation of sugar factories, where you want to run a maximum production, while increasing the maximum capacity stepwise over a short period to the desired level.



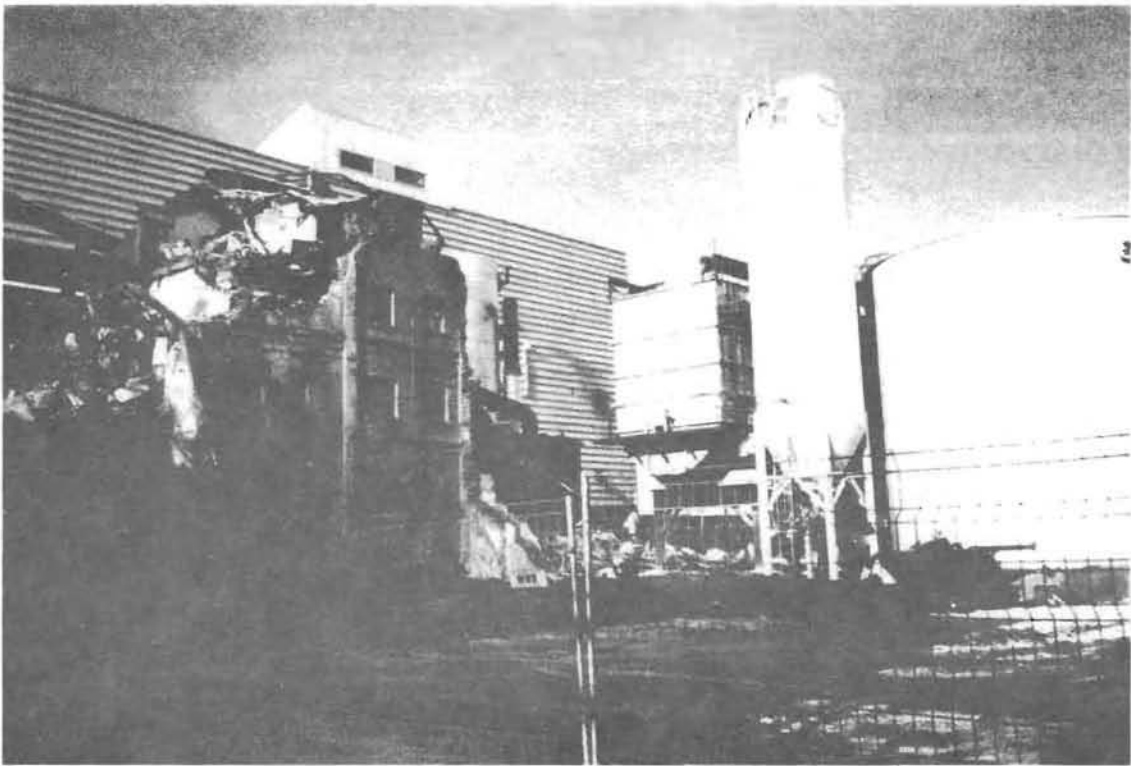
The beginning 1991



Diffusion and Juice purification 1992



Industrial Water & Pump Mfg. Co.  
Campaign 1992



Reconstruction continues January 1993