CLEAR WATER
CLEAN ENVIRONMENT


IDA TOBL


IDA SAN CANDIDO-SESTO


IDA WASSERFELD


IDA SOMPUNT


IDA BASSA VAL PUSTERIA

ARA

PUSTERTAL · PUSTERIA

ARA PUSTERIA

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CLEAR WATER
CLEAN ENVIRONMENT

COMMISSIONED FROM THE MUNICIPALITY OF VAL PUSTERIA

ARA PUSTERIA

Catchment area: 2.168 km^2

Lenght sewerage system: 131,94 km

Inhabitants equivalent: 300.000 EW_{bio}

Yearly quantity of sewage: 13.090.000 m^3/a

Sludge quantity: 10.630 tons/a

ARA
PUSTERTAL · PUSTERIA

City of
Brunico

Municipality of
Valle Aurina

Municipality of
Badia

Municipality of
Corvara

Municipality of
Gais

Municipality of
Valle di Casies

Municipality of
San Candido

Municipality of
Chienes

Municipality of
La Val

Municipality of
Mareo

Municipality of
Rio di Pusteria

Municipality of
Selva dei Molini

Municipality of
Villabassa

Municipality of
Valdaora

Municipality of
Perca

Municipality of
Falzes

Municipality of
Braies

Municipality of
Predoi

Municipality of
Rasun-Anterselva

Municipality of
Rodengo

Municipality of
Campo Tures

Municipality of
San Martin de Tor

Municipality of
Sesto

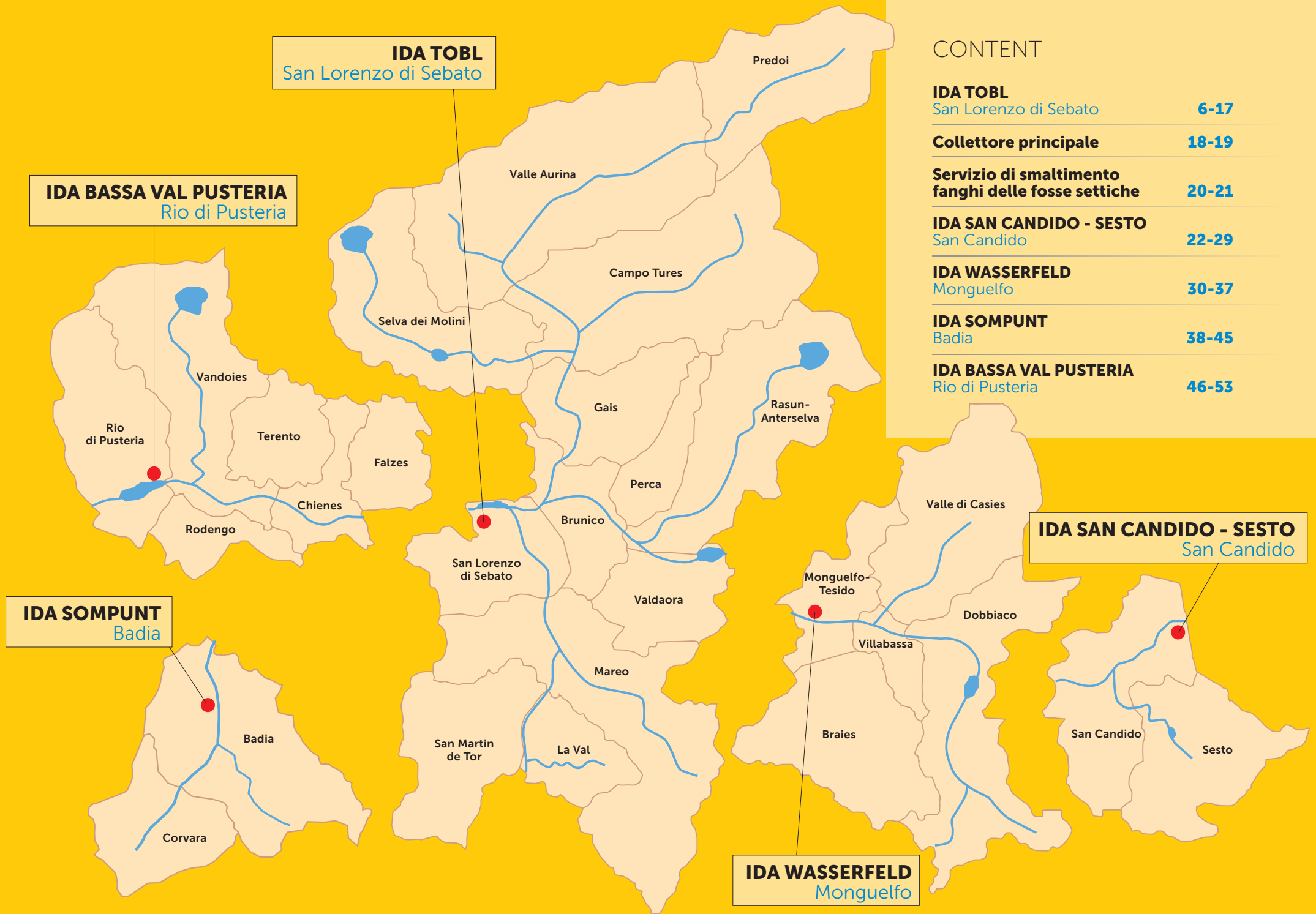
Municipality of
San Lorenzo di Sebato

Municipality of
Terento

Municipality of
Dobbiaco

Municipality of
Vandoies

Municipality of
Monguelfo-Tesido



CONTENT


Gasometer
Side gallery
Septic tank
Septic tank
Building operational
Sludge dryer
Central gallery
Side gallery
Termal treatment plant

IDA TOBL
San Lorenzo di Sebato

CONSTRUCTION PROGRESS

Start of construction: March 1991

Completion: December 1995

Beginning of aperation and function tests: January - June 1996

In operation since: 3. July 1996

Discharge of sewage flow: June 1996
Valle Aurina: June 1997
Bassa Val Badia: December 2000

OPERATING DATA

Yearly quantity of sewage: 6.500.000 m^3/a

Sludge quantity: 8.000 Tons/a

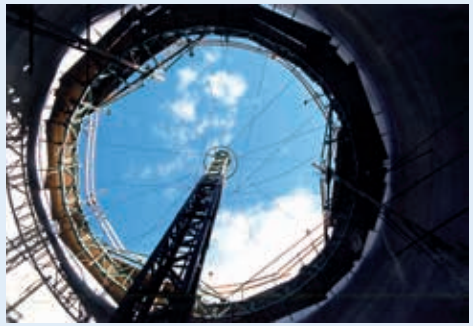
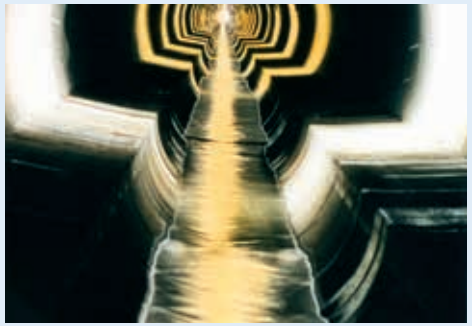
Produced electrical energy: 3.500.000 kWh/a

Efficiency: BOD_5 = 99%
COD = 96%
N_{tot} = 87%
P_{tot} = 96%





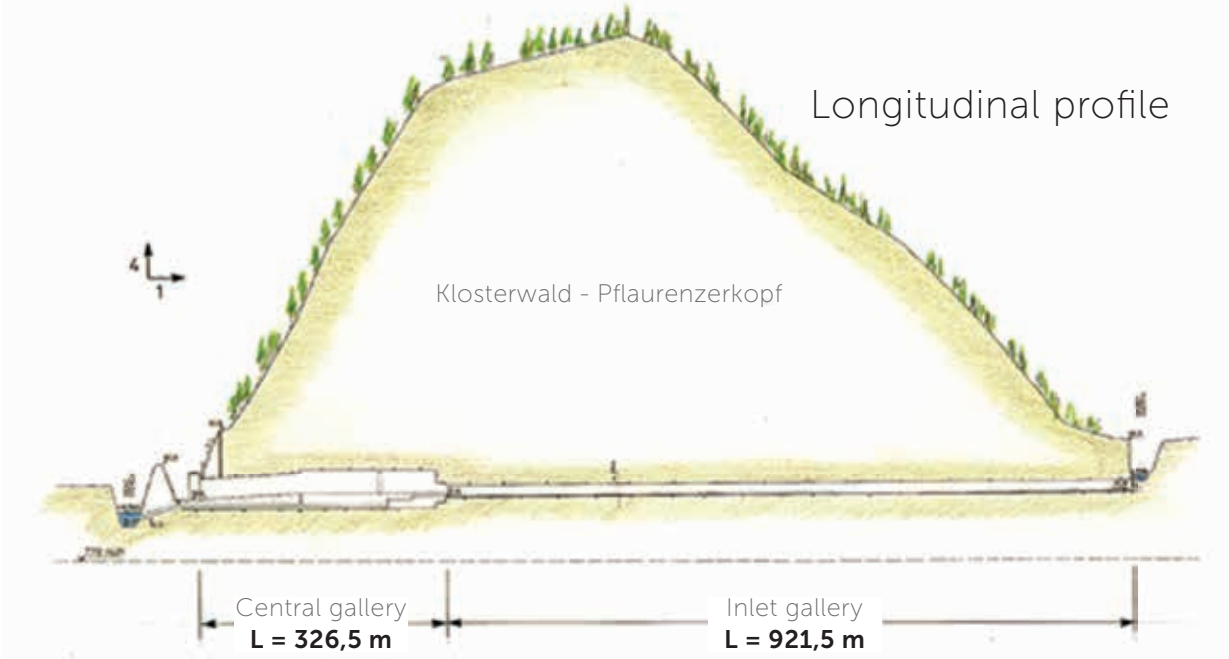


1... Inlet gallery
2... Central gallery
3... Connecting gallery
4... Side gallery
5... Septic tank
6... Gasometer
7... Building operational
8... Sludge dryer
9... Termal treatment plant

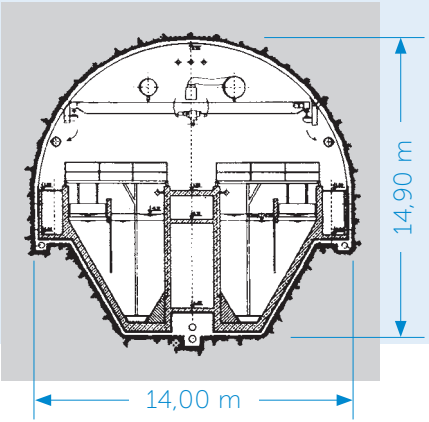
A TECHNOLOGICAL MIRACLE IN THE MOUNTAIN. IT IS WORTH A VISIT – AND NOT ONLY A VIRTUAL ONE!

For the cavern construction, 200,000 m^3 of solid material were extracted from Mt. Tobl, for which the plant was also named. The construction required 740 km of drilling and 220 tonnes of explosive agent. The underground galleries' cross section is twice as big as an underground motorway tunnel's cross section. The total sewage line, the ventilation system centre, as well as the dosing apparatuses are installed in the galleries. Also the digestion tower, with exception of the gas area, is built into the rock. Only the remaining sludge line, the total gas line, the sludge drying plant and the thermal waste recycling plant are in the operational building on the surface.



CAVERN

Preliminary clarifier

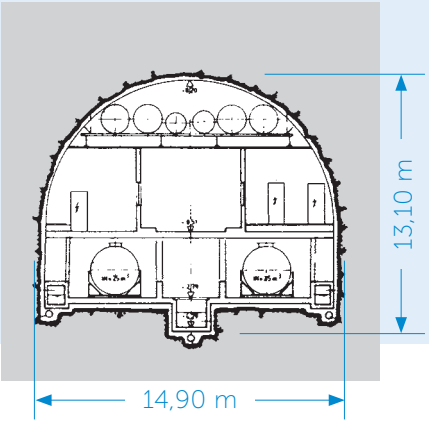


Central Gallery

Consisting of:

Screening plant
Aerated grit chamber
Skip-raked fine bar screen
Pre-thickeners
Technical rooms

Technical rooms

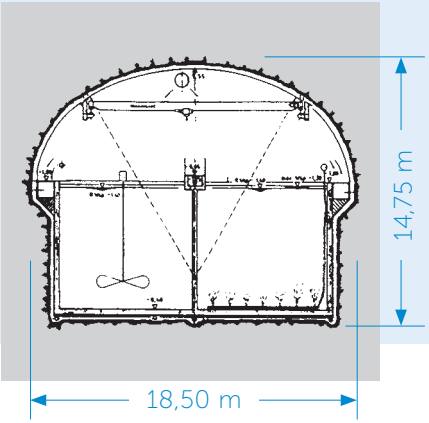


Technical data

Central Gallery:

Gallery Lenght: approx. 325 m
Full section: 65 - 180 m^2
Excavation volume: approx. 35.000 m^3

Biological treatment

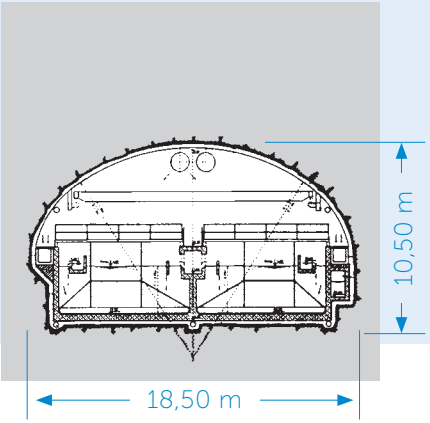


Side Galleries

Consisting of:

Preliminary clarifier
Denitrification basin
Nitrification basin
Deammonification
Final clarifier

Preliminary clarifier



Technical data

Side Galleries:

Gallery Lenght: approx. 325 m
Full section: 190 - 200 m^2
Excavation volume: approx. 75.000 m^3

Cavern

Technical data:

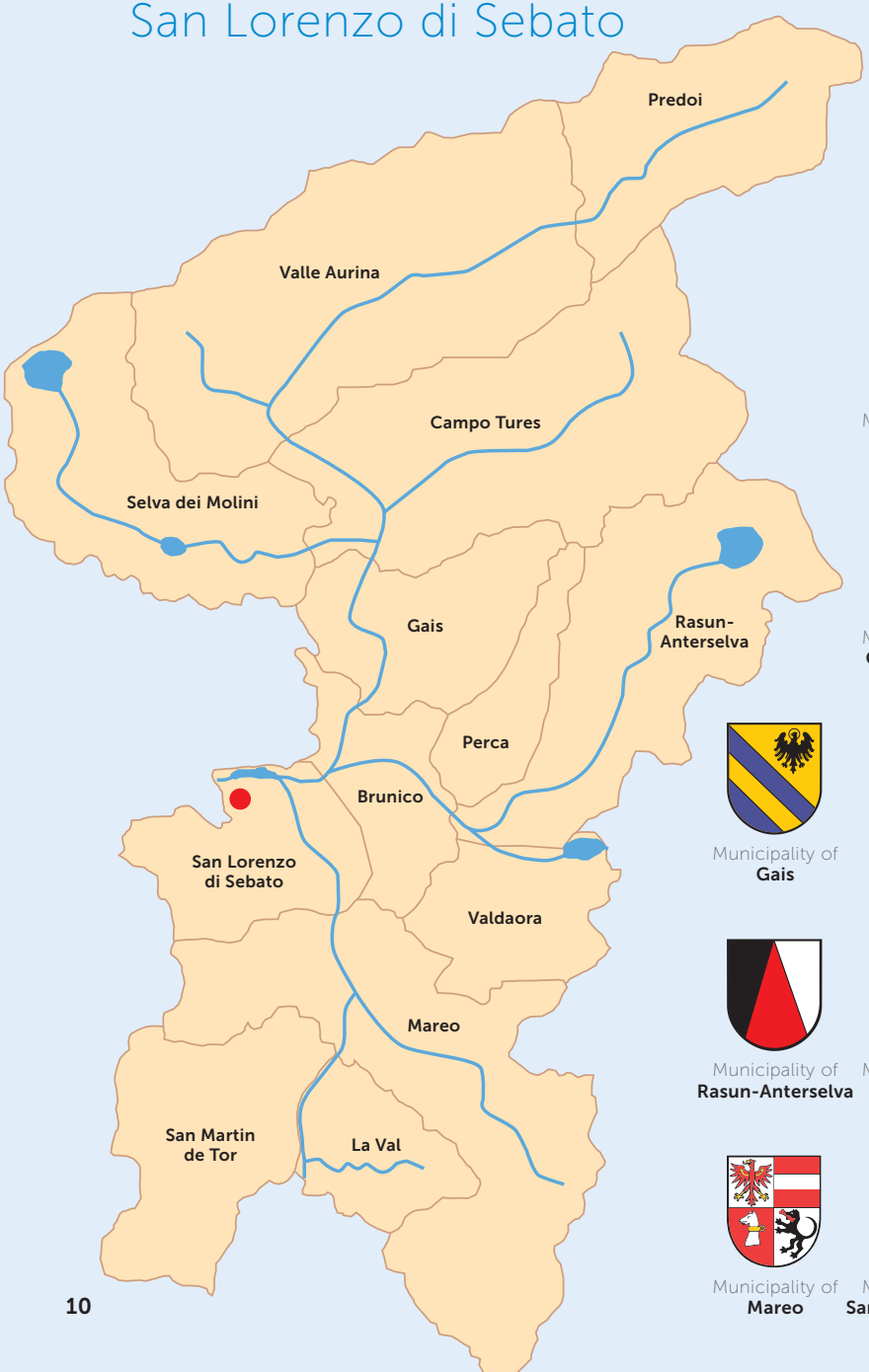
Excavations total: approx. 200.000 m^3
Surface support: approx. 50.000 m^2
Concrete Spritz: approx. 12.000 m^3
Anchors: approx. 50.000 m
Welded Steel Mesh: approx. 200.000 kg
Quantity of explosives: approx. 150.000 kg

Total Cavern

Requirements:

Concrete regularization: approx. 2.000 m^3
Concrete structures: approx. 22.000 m^3
Steel Formwork: approx. 1.500.000 kg
Formwork: approx. 50.000 m^2

IDA TOBL
San Lorenzo di Sebato



MUNICIPALITIES

Municipality of **Predoi**

Municipality of **Valle Aurina**

Municipality of **Campo Tures**

Municipality of **Selva dei Molini**

Municipality of **Gais**

City of **Brunico**

Municipality of **Perca**

Municipality of **Rasun-Anterselva**

Municipality of **Valdaora**

Municipality of **San Lorenzo di Sebato**

Municipality of **Mareo**

Municipality of **San Martin de Tor**

Municipality of **La Val**

PERFORMANCE DATA

Capacity:	150.000 inhabitants equivalent
each	33% population
	47% from tourism
	20% from industry
Loads:	7.800 kg BOD_5/d
	12.000 kg COD/d
	1.560 kg N_{tot}/d
	390 kg P_{tot}/d
Sewage flow:	Daily quantity of sewage 15.000 m^3/d
	Dry weather flow 570 l/s
	Wet weather flow 1.140 l/s
Quantity of sludge:	row 1.000 m^3/d
	7.000 kg/d dried matter
	After primary sludge treatment 150 m^3/d
	After sludge dewatering 20 m^3/d
Tot. effective volume:	meccanical – biological
	treatment 38.440 m^3
	Sludge treatment 5.860 m^3
Tot. effective volume:	Gallerys: 200.000 m^3
	TRA + TVA: 5.815 m^3
	Service building: 12.550 m^3

TECHNICAL DATA SEWERAGE SYSTEM

Catchment area: 1.176 km^2
Lenght: 78,32 km
Diameter: 200 mm – 1.200 mm
Material: SB, GFK, SZ, PVC
Quantity drains: 1.147
Quantity measuring stations: 14
Quantity pump stationes: 0

TECHNICAL DATA

Emergency screening plant:

3 bar-screen

Bar spacing 3 mm

Screening plant:

2 bar-screen, wide 1.200 mm

Bar spacing: 15 mm by 2 screenings

wash presses integrated and bagging decive

Skip-raked fine bar screen:

2 Aqua - Guard screens, wide 1.500 mm

Bar spacing: 6 mm by 2 screenings

wash presses integrated and bagging decive

Aerated grit chamber: 2-line; each line

Grit chamber cross section 6,50 m^2

Volume 200 m^3; T = 12 min by Q_t

Grit washer Q_m = 20 l/s

Preliminary clarifier:

4-line, each line

Wide 7,6 m; Lenght 13,50 m

Water depht 2,75 m

V=260 m^3; t = 0,23 h by Q_t

Transverse flowed, sludge scrapers

Biological basin: 4-line, each line

Denitrification basin

1 basin = 3.250 m^3

Nitrification basin = 6.350 m^3

Number of slabs-Messner: 92 per basin

Number of slabs-Messner: 156 per basin by intermittend operation

Volume - Denitrification 9.750 m^3

Volume - Nitrification 19.050 m^3

Volume - Total VN + VD = 28.800 m^3

3x 5 Horizontal agitator

Recirculation pumps 12x Q = 140 l/s

Blowers:

2 compressors, each 5.000 Nm^3/h, 132 kW

2 compressors, each 2.500 Nm^3/h, 70 kW

Deammonification:

1 basin batch treatment = 1.514 m^3

1 surnatant water accumulation = 1.400 m^3

4 horizontal agitator

1 compressor, 1750 Nm^3/h

274 kg NH4-N/d

Final clarifier: 8-line, each line

Lenght / Wide= 45/7,6 m

Water depht 4,50 m; V = 2x 1.400 m^3

Longitudinal flowed, chain&flight scrapers

Phosphate Precipitation:

Simultaneous precipitation

Lime milk dissolving station

For regulation pH-value in biological basin

Quantity of row sludge:

Row sludge 1.000 m^3/d by 7.000 kg TS/d and

150 m^3/d after primary sludge pretreatment

Pre-thickeners: 4 pieces

4,9 m x 4,9 m; Volume 4x 90 = 360 m^3

Rabble rakes, sludge water separation

Secondary sludge pretreatment:

Screencloth: Q = 36 m^3/h

Conditioning by polyetectrolytes

Strainpress: Q = 20 m^3/h

Digestion chambers: 2 pieces

Cylindrical tank D = 14,00 m; H = 25,00 m

Usable vol. = 1.800 m^3; digestion time 30 day

Circulation by biogas + pumps

Post thickeners: 2 pieces

Volume 2x 500 = 1.000 m^3

CO-substrates tank: Volume x 500 m^3

Gasometer:

Cylindrical enclosure in steel construction

Ring membrane gas accumulator; 40 mbar

Usable volume: 1.500 m^3; H = ca. 15,0 m

Gas flare plant:

Capacity = 150 m^3/h

Sludge dewatering:

3 screw press: Q = 3 - 5 m^3/h

Conditioning by polyetectrolytes

Sludge storage:

tank: 80 m^3 loaded by screw conveyor

Ventilation system:

Biofilter for exhaust air:

Q = 28.000 m^3/h, Area: 320 m^2 V = 800 m^3

Gas engine plant:

3 pieces each P_{tot} = 420 kW; P_{el} = 140 kW;

P_{th} = 233 kW for methangas und biogas

1 piece each P_{tot} = 743 kW; P_{el} = 330 kW;

P_{th} = 413 kW for biogas

Treatment of industrial water:

Sand filter and UV-system (UV- Anlage): 20 l/s

Sludge drying plant (strip drier):

Capacity evaporation: 2 Tons H_2O/h

EW_{bio} = 430.000

24.000 Tons/a

Thermal waste recycling plant:

Pyrolysis revolving drum

Capacity: 550 kg/h pellets from the drying plant

Dry flue gas cleaning

SEWAGE TREATMENT LINE

The sewage treatment plant was dimensioned and engineerized for a 150.000 inhabitants equivalent capacity, in the way to satisfy the needs of population in local areas, of tourism, of industry and artisan shipment, guarantying in the meanwhile higher levels in quality, with the maximum efficiency in organic pollutant load knocking down and phosphoric and nitrogen components strong reduction. The target of sewage treatment is reached with physical, biological, chemical and biochemical processes. The mechanical sewerage, with a 25% organic load reduction efficiency, is assured by a spire screen, by aerated grit chamber, bar-screens and primary clarifier. After that, the sewage treated mechanically cross a series of 6 falls: in the first two, in totally oxygen absence, the nitrous compounds reduction is realized (denitrification), while in the following 4 falls, the bigger ones, atmospheric oxygen is injected to permit la biodegradation of organic compounds and nitrous compounds oxidation (nitrification). The recycle of vented sewage, of actives sludges and the regulation of oxygen concentration, permit the creation of an ambient in which microorganisms and various nature batteries may easily do the proper work of degradation of pollutant load. These microorganisms, in bow structures, are the actives sludges that are separated by sedimentation in the big secondary clarifier. The last reduction of phosphoric compounds is obtained by simultaneous precipitation (adding chemicals agents).

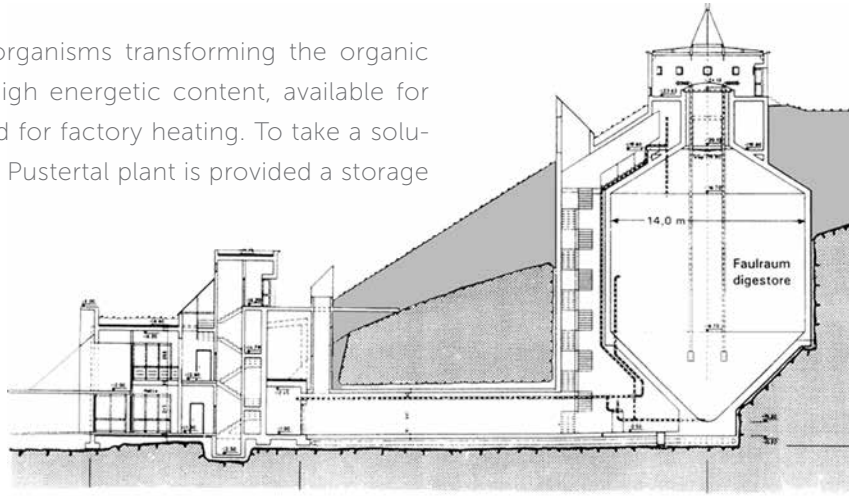
The water's superior layer, now purified, flows out on toothed threshold, is analyzed by a measurement and metering station (for quality and flow rate), and flows out into Rienz river.

GAS & SLUDGES TREATMENT LINE

The sludge coming from the first clarifiers (primary sludge) is thickened mechanically by a rotating drum. The sludge is now eliminated from secondary clarifiers and thickened mechanically by screencloth. The pre-thickened sludges are now reached at a temperature of 40°C approx and digested into an anaerobic digestion chamber. The sludges, now stabilized and neutrals, are dried with 3 screw press.

During the digestion process, the microorganisms transforming the organic compounds on CO_2 and methane with high energetic content, available for thermal heating of digestion chambers and for factory heating. To take a solution at the gas over production, in the ARA Pustertal plant is provided a storage gas tank.

The gas line is composed by:
gasometer, gas flare,
heater and 4 cogeneration groups.

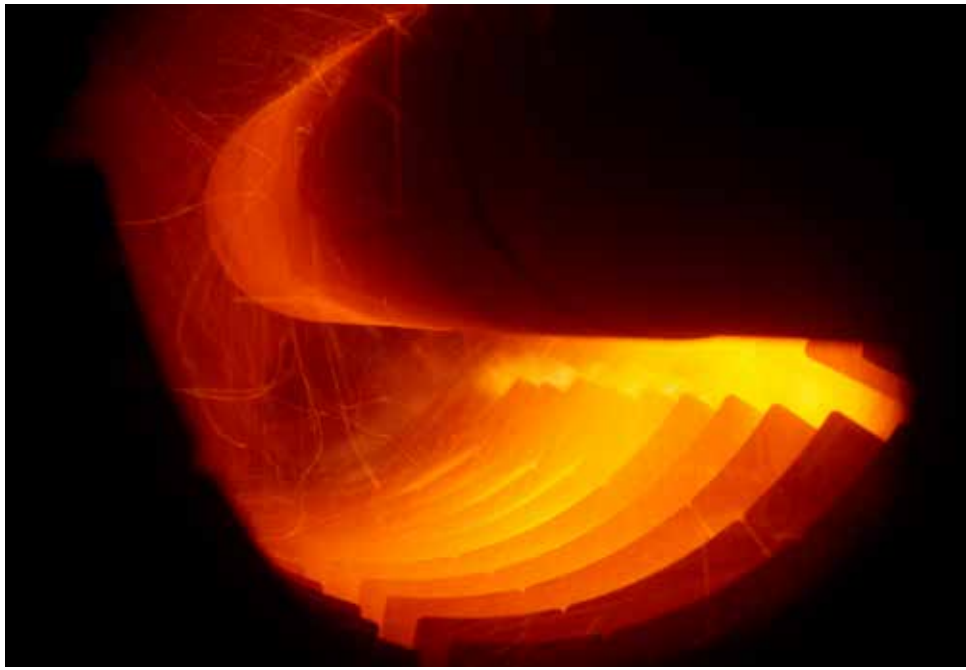


SLUDGE DRYER

The dewatered sludge of ARA Pustertal and ten other municipal waste water treatment plants is dried to granulate within a belt dryer. The water content is decreased from 72 – 82% within the dewatered sludge to 4 – 5% within the granulate. 40 containers (net weight 12,5 metric tons) are reduced to 8 – 10 containers every week. This ia a weight reduction of 75 – 80%
Conveyor screws will bring the dewatered sludge to the belt dryer. At 140°C the water is evaporated. The energy to heat the circulating air is generated by the thermal treatment plant.

THERMAL TREATMENT PLANT

The dehydrated sewage sludge is mineralized within the thermal treatment plant. This step is closing the cycle of the sewage sludge.
24.000 metric tons of dewatered sludge are reduced to approximately 2000 metric tons of ash. This reduces truck transporting capacity of about 1000 semi-trucks to approximately 80 semi-trucks. The ash is recycled and used to cover landfills.
The thermal treatment plant is a two stage rotary kiln. First stage is a pyrolysis process at 200-400°C. second stage is an oxidation process at 400-600°C. Flue gas and pyrolysis gas are oxidized at 850°C within a post combustion chamber. The heat recovery system takes out the energy from the flue gas to be used within the drying process. A bag filterhouse with a dry neutralization guarantees minimum emissions off the process.
Continuous clean gas monitoring provides maximum ecological standard of the plant.



VENTILATION SYSTEM

During Tobl plant engineer studies, a special importance matter was the particular attention at stinks emissions monitoring. For this reason, various air treatment plant systems was provided.
Galleries ventilation was dimensioned for an air flow rate of 140.000 m^3/h, equal to 1 to 6 air changes per hour. These kinds of applications guarantee a continuous development of oxygen into the galleries. The factory ventilation system was dimensioned for an air flow rate of 14.000 m^3/h and guarantee that in the warehouse no one kind of stinks. Another chemical treating plant is positioned into the surnatant water accumulation basin and treats air with no ammonia contents.
The exhausting air coming from the drying plant (15.000 m^3/h) is biologically treated. The air is flowed into a injection condenser, is treated and cooled with biologically treated water and now putted on the 320 m^2 surface bio-filter. Into the bio-filter the air coming from the thickeners (13.000 m^3/h) is also biologically treated.
Periodical Analysis are made by external institutes, guarantying that all atmospheric emissions are under the minimum level.

KEY DATA MAIN COLLECTOR:

Overall length:	131.46 km
Shafts:	2,136 shafts
Diameter:	Ø 200 – 1,100 mm
Mean age:	25 years
Special structures:	Siphons, pipe bridges, drop structures, rainwater basins, stretches of tunnel

MAIN COLLECTOR

The ARA Pustertal AG operates the five wastewater treatment plants of the optimal catchment area and the associated main collector owned by the wastewater consortium Pustertal. The management contract covers all costs and services incurred, including ordinary and extraordinary maintenance and repair work for the duration of the contracted operating years.

The collection and discharge of wastewater from the 28 connected municipalities, with a total area of 2,168 km^2, takes place via a sewer network with a total length of 131.46 km. Dewatering takes place both in the mixing system as well as in the separation system. The sewer network consists entirely of gravity sewers.

A total of 29 measuring stations are installed across the entire sewer network. The measured quantities are sent online to the respective wastewater treatment plants and from there to Bolzano to the relevant office. All measuring stations are regularly maintained. Radar and ultrasonic measuring systems are used.

Three sewer inspectors are operationally responsible for the maintenance and repair of the main collector, the measuring stations, the special structures and the rain basins.

Every year around 10% of the total network is cleaned, which corresponds to about 13 km and thus also complies with regulatory requirements. Damages are detected with TV cameras and then resolved as quickly as possible to ensure the tightness and functionality of the network.

The entire sewer system has been measured. All relevant data are continuously being entered into the geographic information system, as well as into the maintenance programme. Thus, an overall picture of the sewer system is created, allowing it to be maintained and repaired.

The sewer service is there to advise planning offices and municipalities when it comes to new connections and the laying of pipes and oversees their proper execution.

KEY DATA:

Registered small wastewater treatment plants: 1,108 plants

Tank types: Imhoff tanks, three-chamber septic tanks, one- and two-chamber systems, special structures

Personnel for carrying out the service: 2

Sewer cleaning vehicle: 1 gully sucker

WASTE DISPOSAL SERVICE FOR SMALL SEWAGE TREATMENT PLANTS

A small sewage treatment plant is, as the word implies, a small wastewater treatment plant. Its task is to clean domestic wastewater and to separate solids from liquids. The liquids are returned to nature, but the solids are collected and disposed of. Therefore, it is important to introduce only domestic wastewater into such a system.

Since June 2002, municipalities are responsible for the removal and disposal of the sewage sludge from the individual disposal systems for domestic wastewater.

On 17.08.2015, the Wastewater Consortium Pustertal assigned the removal and disposal of the sewage sludge from the individual disposal systems for domestic wastewater to Ara Pustertal AG.

A database was created, a sewer cleaning vehicle was bought, a driver was hired and the service was launched on 13.07.2016.

For the service to be operated transparently, a work programme is drawn up each year, setting out the time period in which each of the municipalities will be approached. In addition, local residents are contacted and informed by mail and telephone.

The quantities of sludge from each disposal system must be registered by law.

The municipalities that have benefited from the disposal service are invoiced on a monthly basis.


WATER RECYCLING
R
KLARES WASSER
SAUBERE UMWELT
IM AUFTRAG DER PUSTERTALER GEMEINDEN
ARA
KAISER
FC 7932V


Propane
Treatment sludge &
Ventilation system
Compressor & Phosphate
precipitation station
Digester
Gasometer
Gas compressor station
Preliminary clarifiers
Biological basin
Aerated grit
chamber
Gas flare
Final clarifiers
Stock
Cogeneration plant
Gas energy plant
Sludge unloading
& distribution
Pump station & Screening plant
Operational building

IDA SAN CANDIDO-SESTO
San Candido

CONSTRUCTION PROGRESS

Start of building: May 1995

Completion: October 1997

Initial operation and functional checks: Nov. 1997 - Feb. 1998

In operation since: 10. February 1998

Induction: waste water San Candido February 1998
waste water Sesto July 1998

OPERATIONAL DATA

Yearly quantity of sewage: 1.150.000 m^3/a

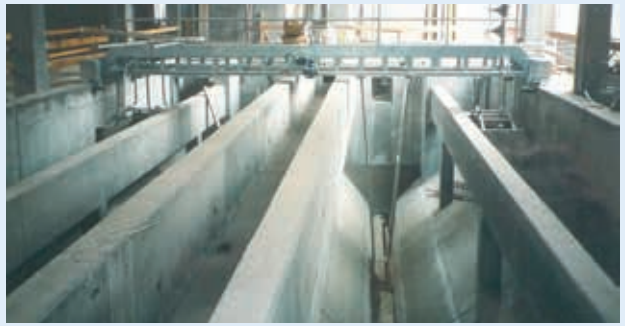
Sludge quantity: 1.100 Tons/a

Produced electrical energy: 350.000 kWh/a

Efficiency:
BOD_5 = 98%
COD = 96%
N_{tot} = 85%
P_{tot} = 93%








IDA SAN CANDIDO-SESTO
San Candido

MUNICIPALITIES

Municipality of **San Candido**

Municipality of **Sesto**

PERFORMANCE DATA

Capacity:	47.000 inhabitants equivalent
each	25% population
	50% from tourism
	25% from industry
Loads:	1.500 kg BOD_5/d
	2.500 COD/d
	225 kg N_{tot}/d
	51 kg P_{tot}/d
Sewage flow:	Daily quantity of sewage 3.200 m^3/d
	Dry weather flow 141 l/s
	Wet weather flow 256 l/s
Quantity of sludge:	row 182 m^3/d
	1.300 kg/d dried matter
	After primary sludge treatment 30 m^3/d
	After sludge dewatering 5 m^3/d
Tot. effective volume:	meccanical – biological
	treatment: 9.050 m^3
	Sludge treatment 1.610 m^3
Tot. effective volume:	30.000 m^3

TECHNICAL DATA SEWERAGE SYSTEM

Catchment area: 160 km^2
Lenght: 13,35 km
Diameter: 400 mm – 1.000 mm
Material: GFK, GU, Beton
Quantity manholes: 269
Quantity measuring stations: 3
Quantity Pump stations: 1

TECHNICAL DATA

Pump station:

2 screw conveyor, 800 mm,
Tilt angle 33°; Q_{max} 128 l/s

Emergency screening plant:

1 bar-screen; Bar spacing 3 mm

Screening plant:

2 bar-screen, 700 mm
Bar spacing: 5 mm; Q_{max}=936 m^3/h
by 1 screenings wash presses integrated
and bagging decive

Aerated grit chamber:

2-line; each line
Grit chamber: Cross section 2,07 m^2
Volume 67,2 m^3; T = 9 min by Q_t
Grit washer Q_m= 12 l/s

Preliminary clarifier: 1-line,
Wide 6,0 m; Lenght 18,60 m
Water depht 2,35 m
V = 254 m^3.....t = 0,49 h by Q_t
Longitudinal flowed, sludge scrapers,

Biological basin: 2-line, each line
Aerob basin 1 basin = 620 m^3
Anox basin (Denitrification)
2 basins = 880 m^3
Aerob basin (Nitrification) = 1.325 m^3
162 pieces membrane diffusers
Volume - Aerob basin 1.320 m^3
Volume - Denitrification 1.760 m^3
Volume - Nitrification 2.650 m^3
Volume - Total A + VD + VN = 5.730 m^3
6 Horizontal agitator Q = 16.990 m^3/h
Recirculation pumps 2 x Q = 120 l/s
4 compressors, each: 300/720 Nm^3/h, 9,5/19,3 kW

Final clarifier: 4 basins
Lenght/Wide = 37,0/6,0 m
Water depht 4,50 m; V = 4.160 m^3
Longitudinal flowed, chain&flight scrapers

Phosphate Precipitation:

Simultaneous precipitation

Quantity of row sludge:

Row sludge 182 m^3/d by 2.341 kg TS/d
and 41 m^3/d after primary sludge pretreatment

Pre-thickeners: 1 pieces
diameter 7,00 m; Volume = 1x 234 m^3
Rabble rakes, sludge water separation

Secondary sludge pretreatment:

screencloth, Conditioning by
Polyetectrolytes Q = 30 m^3/h

Digestion chambers: 1 piece
Cylindrical tank D = 12,00 m; H =12,70 m
Usable volume = 1.140 m^3;
digestion time 45 days
Circulation by biogas + pumps

Post thickeners: 1 piece
diameter 7,00 m; volume = 1x 234 m^3
Rabble rakes

Gasometer:

Cylindrical enclosure in steel construction
Gas accumulator;
Usable volume 490 m^3; H = rd. 8,0 m

Gas flare plant:

Capacity = 15 m^3/h

Gas compressor station:

2 compressors

Sludge dewatering:

1 screw press, Conditioning by
Polyetectrolytes, Q = 3 – 5 m^3/h

Sludge storage:

Area: 220 m^2
loaded by screw conveyor

Liquified gas installation:

Tank V = 25 m^3 (interrated) by
evaporator station

Ventilation system:

Chemical area treatment scrubber
From meccanical and sludge treatment:
15.000 m^3/h
Heating system plant by 2 boiler plants each
350 kW thermal capacity by switching auto-
matically for methane gas or biogas

Gas engine plant:

1 pieces each
P_{tot} = 151 kW; P_{el} = 50 kW;
P_{th} = 85 kW for propane and biogas
One emergency power generator
P_{el} = 185 kW for propane and biogas

Deep well – industrial water:

2 pieces of pumps, each 8 – 12 l/s

SEWAGE TREATMENT LINE

The sewage treatment plant was dimensioned and engineerized for a 47.000 inhabitants equivalent capacity, in the way to satisfy the needs of population in local areas, of tourism, of industry and artisan shipment, guarantying in the meanwhile higher levels in quality, with the maximum efficiency in organic pollutant load knocking down and phosphoric and nitrogen components strong reduction. The target of sewage treatment is reached with physical, biological, chemical and biochemical processes. The mechanical sewage, with a 25% organic load reduction efficiency, is assured by a spire screen, by aerated grit chamber, bar-screens and primary clarifier. After that, the sewage treated mechanically cross a series of 3 falls: in the first one, in totally oxygen absence, takes place the bio-chemical process of partial phosphoric compounds deleting, in the second one, the nitrous compounds reduction is realized (denitrification) while in the last one, the bigger one, atmospheric oxygen is injected to permit la biodegradation of organic compounds and nitrous compounds oxidation (nitrification). The recycle of vented sewage, of actives sludges and the regulation of oxygen concentration, permit the creation of an ambient in which microorganisms and various nature batteries may easily do the proper work of degradation of pollutant load. These microorganisms, in bow structures, are the actives sludges that are separated by sedimentation in the big secondary clarifier. The last reduction of phosphoric compounds is obtained by simultaneous precipitation (adding chemicals agents).

The water's superior layer, now purified, flows out on toothed threshold, is analyzed by a measurement and metering station (for quality and flow rate), and flows out into Drava river.

GAS & SLUDGES TREATMENT LINE

The sludge coming from the first clarifiers (primary sludge) is thickened mechanically by a pre-thickener. The sludge is now eliminated from secondary clarifiers and thickened mechanically by screencloth. The pre-thickened sludges are now reached at a temperature of 38°C approx and digested into an anaerobic digestion chamber. The sludges, now stabilized and neutrals, are dried with a screw press.
During the digestion process, the microorganisms transforming the organic compounds on CO2 and methane with high energetic content, available for thermal heating of digestion chambers and for factory heating. To take a solution at the gas over production, in the San Candido Sesto plant is provided a storage gas tank .

The gas line is composed by:
gasometer, pressurization station, gas flare, 2 heaters and 1 cogeneration groups.

VENTILATION SYSTEM

During San Candido Sesto plant engineer studies, a special importance matter was the particular attention at stinks emissions monitoring. All the stronger sources and ways of stinkness (fine bar screen, aerated grift chamber, clarifier and the entire sewerage treatment plant) are positioned on warehouses with the proper air purification system.
The stink air, until a flow rate of 15.000 m^3/h, is purified with scrubber at crossing flows system with, storing the thermal energy produced.

COMPONENTS AND POWER

For sewerage system and sludges treatment were provided a total amount of 109 units divided into instrumentation, machineries, for a total amount of power consumption of approx 300 kW; the same items quantity were necessary for heating system, ventilation, air treatment, lightness systems, hydro feed exc. For power plant, control and regulation of all these plants and systems, 25 km of bundles and cables were provided.


Screening plant & Areated grit chamber
Preliminary clarifiers
Biological basin
Final clarifiers
Gasometer
Treatment sludge &
Ventilation system
Operational building
Final clarifiers
Propane
Sludge preteatment
Gas flare
Digester

IDA WASSERFELD
Monguelfo

CONSTRUCTION PROGRESS

Start of construction: October 1993

Completion: September 1999

Beginning of operation and function tests: Oct. - Dec. 1999

In operation since: 16. December 1999

OPERATIONAL DATA

Yearly quantity of sewage: 1.700.000 m^3/a

Sludge quantity: 1.050 Tons/a

Produced electrical energy: 660.000 kWh/a

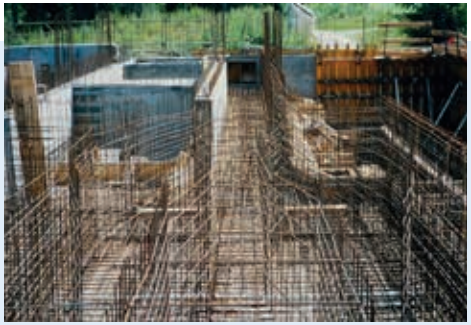
Efficiency:

BOD_5 = 99%

COD = 95%

N_{tot} = 86%

P_{tot} = 92%





IDA WASSERFELD
Monguelfo

MUNICIPALITIES

Municipality of **Valle di Casies**

Municipality of **Monguelfo-Tesido**

Municipality of **Villabassa**

Municipality of **Dobbiaco**

Municipality of **Braies**

PERFORMANCE DATA

Capacity:	40.000 inhabitants equivalent
each	30% population
	45% from tourism
	25% from industry
Loads:	2.400 kg BOD_5/d
	3.500 kg COD/d
	350 kg N_{tot}/d
	120 kg P_{tot}/d
Sewage:	Daily quantity of sewage: 5.000 m^3/d
	Dry weather flow: 111 l/s
	Wet weather flow 280 l/s
Quantity of sludge:	row 182 m^3/d
	1.500 kg/d dried matter
	After primary sludge treatment 30 m^3/d
	After sludge dewatering 5 m^3/d
Tot. effective volume:	mechanical – biological
	treatment 10.870 m^3
	Sludge treatment 1.760 m^3
Tot. effective volume:	31.000 m^3

TECHNICAL DATA SEWERAGE SYSTEM

Catchment area: 390 km^2

Lenght Hauptsammler: 15,08 km

Diameter: 250 mm – 900 mm

Material: AZ, STB, PVC, GFK

Quantity drains: 263

Quantity measuring stations: 5

Quantity pump stationes: 0

TECHNICAL DATA

Emergency screening plant:

1 bar-screen

Bar spacing 3 mm

Screening plant: 2-line

2 step-screen

Bar spacing: 6 mm; Q_{max} = 1.275 m^3/h

by 1 screenings wash presses integrated

and bagging deceive

Aerated grit chamber:

2-line; each line

Grit chamber: Cross section 4,51 m^2

Volume 75 m^3

T = 6 min by Q_t

Grit washer Q_m = 20 l/s

Preliminary clarifier: 1 line,

Diameter D = 8,00 m

Water depht 2,50 m

V = 460 m^3.....t = 0,59 h by Q_t

sludge scraper

Biological basin:

2-line, each line

Water depth T = 5,50 m

Aerob basin 1 basin = 600 m^3

Anox basin 1 basin (Denitrification) = 600 m^3

Aerob 3 basins (Nitrification) = 1.800 m^3

6x 180 pieces membrane diffusers

Volume - Aerob basin 1.200 m^3

Volume - Denitrification 1.200 m^3

Volume - Nitrification 3.600 m^3

Volume - Total A + VD + VN = 6.000 m^3

2x 3 Horizontal agitator

Recirculation pumps 2x Q = 320 l/s

5 compressors; 9.668 Nm^3/h, 290 kW

Final clarifier:

2 basins

Circular basin D = 30 m

Water depht 4,05 m; V = 2x 2.130 m^3

sludge scraper

Phosphote precipitation:

Simultaneous precipitation

Quantity of row sludge:

Row sludge 182 m^3/d by 500 kg TS/d

and 30 m^3/d after primary sludge pretreatment

Pre-thickeners: 2 pieces

Diameter 7,24 m; Volume = 2x 140 m^3

Rabble rakes, sludge water separation

Secondary sludge pretreatment:

screencloth, Conditioning by

Polyetectrolytes Q = 30 m^3/h

Strainpress:

Q = 5 m^3/h

Digestion chambers: 1 piece

Truncated cone:

D1 = 13,90 m; D2 = 2,50 m; H = 18,00 m

Usable volume = 1.200 m^3;

Digestion time 60 days

Circulation by biogas + pumps

Post thickeners: 2 piedes

Diameter = 7,24 m; Volume = 2x 140 m^3

Rabble rakes, sludge water separation

Gasometer:

Pressure tank 25 mbar

Usable volume 270 m^3; H = rd. 8,0 m

Gas flare plant:

Capacity = 120 m^3/h

Gas compressor station:

2 radial compressor

Sludge dewatering:

1 chamber filter press, Conditioning

by Polyelectrolytes Q = 20 m^3/h

Sludge storage:

Area 100 m^2 loaded by screw conveyor

Liquified gas installation:

Tank V = 5 m^3 by evaporator station

Ventilation system:

Chemical area treatment scrubber + biofilter

From sludge treatment: 15.000 m^3/h

Heating system plant by 2 boiler plants

each 411 kW thermal capacity by switching

automatically for methane gas or biogas

Gas engine plant:

2 pieces each

P_{tot} = 223 kW; P_{el} = 83 kW; P_{th} = 123 kW

for propane and biogas

Deep well – industrial water:

2 pieces of pumps, each 20 l/s

SEWAGE TREATMENT LINE

The sewage treatment plant was dimensioned and engineerized for a 40.000 inhabitants equivalent capacity, in the way to satisfy the needs of population in local areas, of tourism, of industry and artisan shipment, guarantying in the meanwhile higher levels in quality, with the maximum efficiency in organic pollutant load knocking down and phosphoric and nitrogen components strong reduction. The target of sewage treatment is reached with physical, biological, chemical and biochemical processes. The mechanical sewage, with a 25% organic load reduction efficiency, is assured by a spire screen, by aerated grit chamber, bar-screens and primary clarifier. After that, the sewage treated mechanically cross a series of 3 falls: in the first one, in totally oxygen absence, takes place the bio-chemical process of partial phosphoric compounds deleting, in the second one, the nitrous compounds reduction is realized (denitrification) while in the last one, the bigger one, atmospheric oxygen is injected to permit la biodegradation of organic compounds and nitrous compounds oxidation (nitrification). The recycle of vented sewage, of actives sludges and the regulation of oxygen concentration, permit the creation of an ambient in which microorganisms and various nature batteries may easily do the proper work of degradation of pollutant load. These microorganisms, in bow structures, are the actives sludges that are separated by sedimentation in the big secondary clarifier. The last reduction of phosphoric compounds is obtained by simultaneous precipitation (adding chemicals agents).

The water's superior layer, now purified, flows out on toothed threshold, is analyzed by a measurement and metering station (for quality and flow rate), and flows out into Rienza river.

GAS & SLUDGES TREATMENT LINE

The sludge coming from the first clarifiers (primary sludge) is thickened mechanically by pre-thickeners. The sludge is now eliminated from secondary clarifiers and thickened mechanically by screencloth. The pre-thickened sludges are now reached at a temperature of 38°C approx and digested into an anaerobic digestion chamber. The sludges, now stabilized and neutrals, are dried with a Strain press.
During the digestion process, the microorganisms transforming the organic compounds on CO2 and methane with high energetic content, available for thermal heating of digestion chambers and for factory heating. To take a solution at the gas over production, in Wasserfeld plant is provided a storage gas tank.

The gas line is composed by:
gasometer, pressurization station, gas flare, 2 heaters and 2 cogeneration groups.

VENTILATION SYSTEM

During Wasserfeld plant engineer studies, a special importance matter was the particular attention at stinks emissions monitoring. Stink air coming from fine bar screen, is adsorbed with compressors and biologically treated into the oxidation basin. The stink air coming from the sludges treating plant is located in warehouses with the proper air treating system.
The stink air, until a flow rate of 15.000 m^3/h, is chemically purified with scrubber at crossing flows system with, storing the thermal energy and biologically purified with a 532 m^2 sized bio filter.

COMPONENTS AND POWER

For sewerage system and sludges treatment were provided a total amount of 150 units divided into instrumentation, machineries, for a total amount of power consumption of approx 220 kW; the same items quantity were necessary for heating system, ventilation, air treatment, lightness systems, hydro feed exc.. For power plant, control and regulation of all these plants and systems, 25 km of bundles and cables were provided


Pond
Final clarifiers
Biological basin
Ventilation system
Sludge tank
Digester
Sludge pretreatment
Preliminary clarifiers
Operational building
Digester
Biological basin
Preliminary clarifiers
Gasometer
Areated grit chamber
Transformer station
Gas flare
Stock
Heating
Workshop
Screening plant

IDA SOMPUNT
Badia

CONSTRUCTION PROGRESS

Start of building: 1983

Completion: 1992

Initial operation and functional tests: December 1989

In operation: since January 1990

OPERATING DATA

Yearly quantity of sewage: 2.000.000 m^3/a

Sludge quantity: 1.000 tons/a

Produced electrical energy: 350.000 kWh/a

Efficiency:

BOD_5 = 98%

COD = 95%

N_{tot} = 75%

P_{tot} = 87%






IDA SOMPUNT
Badia

MUNICIPALITIES

Municipality of **Badia**

Municipality of **Corvara**

PERFORMANCE DATA

Capacity:	58.000 inhabitants equivalent
each	10% population
	80% from tourism
	10% from industry
Loads:	2.955 kg BOD_5/d
	3.905 COD/d
	446 kg N_{tot}/d
	150 kg P_{tot}/d
Sewage flow:	Daily quantity of sewage 5.000 m^3/d
	Dry weather flow 156 l/s
	Wet weather flow 300 l/s
Quantity of sludge:	Row 27 m^3/g
	1.300 kg/d dried matter
	After primary sludge treatment 30 m^3/d
	After sludge dewatering 5 m^3/d
Tot. effective volume:	Meccanical – biological treatment 9.860 m^3
	Sludge treatment 1.080 m^3
Area:	21.207 m^2

TECHNICAL DATA SEWERAGE SYSTEM

reconstruct 2014/15

Catchment area: 109 km^2

Lenght: 5,16 km

Diameter: 300 mm – 400 mm

Material: PEHD

Quantity drains: 114

Quantity measuring stations: 2

Quantity pump stations: 5

TECHNICAL DATA

Emergency screening plant:

1 bar-screen

Bar spacing 3 mm

Screening plant:

2 steep grate

Bar spacing 6 mm, Q_m = 1.008 m^3/h

by 1 screenings wash presses integrated

and bagging decive

Aerated grit chamber: 2-line

Grit chamber: Cross section 2x 11,50 m^2

Volume 2x 270 m^3

T = 65 min by Q_t

Grit washer Q_m = 12 l/s

Preliminary clarifier: 4-line

Wide 5,0 m; Lenght 29,60 m

Wather depht = 2,40 m

V = 4x 380 m^3.....t = 3,0 h by Q_t0,

longitudinal flowed, sludge scrapers

Biological basin:

4-line, each line

Wide 4,60 m

Lenght 38,00 m

Water depht = 5,00 m

4x 242 pieces plate aerator

Volume total 4x 800 = 3.600 m^3

Recirculation sludge,

Recirculation pumps 14x Q = 25 l/s

4 compressors

3 to 1.530 Nm^3/h, 37 kW

1 to 981 Nm^3/h, 30 kW

Final clarifier: 4-basins

Lenght 9,70 m; wide 40,00 m

Water depht = 3,20 m

V = 4x 1.150 m^3.....t = 3,0 h by Qt

Longitudinal flowed, chain&flight scrapers

Phosphate precipitation:

Simultaneous precipitation

Quantity of row sludge:

Row sludge 27 m^3/d con 1.300 kg TS/d

and 30 m^3/d

Pre-thickeners: 1 pieces

Diameter 7,00 m; volume = 1x 150 m^3

Rabble rakes, sludge water separation

Secondary sludge pretreatment:

Screencloth, conditioning by

polyetectrolytes Q = 30 m^3/h

Digestion chambre: 2 piece

Cylindrical tank

D1 = 7,00 m; D2 = 1,30 m; H = 13,40 m

Usable volume = 2 x 390 m^3;

digestion time 30 days

Circulation by pumps

Post thickeners: 1 piece

Diameter = 7,00 m; Volume = 1x 150 m^3

rabble rakes

Gasometer:

Usable volume 500 m^3;

H = rd. 8,0 m, D = 10,00 m

Gas flare plant:

Capacity = 600 m^3/h

Sludge dewatering:

1 screw press

Conditioning by polyetectrolytes

Q = 3 – 5 m^3/h

Sludge storage:

Area: 4x 4,40 m x 9,40 m=165 m^2;

volume: 4x 25 m^3 = 100 m^3

Ventilation system:

Chemical area treatment (scrubber)

from meccanical and sludge

treatment: 15.000 m^3/o

Gas engine plant:

1 piece:

P_{tot} = 170 kW; P_{el} = 60 kW; P_{th} = 110 kW

1 piece:

P_{tot} = 192 kW; P_{el} = 80 kW; P_{th} = 112 kW

Deep well – industrial water:

2 pieces of pumps, each 4,45 l/s and 6,12 l/s

SEWAGE TREATMENT LINE

The sewage treatment plant was dimensioned and engineerized for a 58.000 inhabitants equivalent capacity, in the way to satisfy the needs of population in local areas, of tourism, of industry and artisan shipment, guaranteying in the meanwhile higher levels in quality, with the maximum efficiency in organic pollutant load knocking down and phosphoric and nitrogen components strong reduction. The target of sewage treatment is reached with physical, biological, chemical and biochemical processes. The mechanical sewage, with a 25% organic load reduction efficiency, is assured by a spire screen, by aerated grit chamber, bar-screens and primary clarifier. After that, the sewage treated mechanically cross the biological tank in the atmospheric oxygen is injected to permit the biodegradation of organic compounds and nitrous compounds oxidation (nitrification). The recycle of vented sewage, of actives sludges and the regulation of oxygen concentration, permit the creation of an ambient in which microorganisms and various nature batteries may easily do the proper work of degradation of pollutant load. These microorganisms, in bow structures, are the actives sludges that are separated by sedimentation in the big secondary clarifier. The last reduction of phosphoric compounds is obtained by simultaneous precipitation (adding chemicals agents). The water's superior layer, now purified, flows out on toothed threshold, is analyzed by a measurement and metering station (for quality and flow rate), and flows out into Gader river.

GAS & SLUDGES TREATMENT LINE

The sludge coming from the first clarifiers (primary sludge) is thickened mechanically by a pre-thickener. The sludge is now eliminated from secondary clarifiers and thickened mechanically by screencloth. The pre-thickened sludges are now reached at a temperature of 38°C approx and digested into an anaerobic digestion chamber. The sludges, now stabilized and neutrals, are dried with a screw press.
During the digestion process, the microorganisms transforming the organic compounds on CO2 and methane with high energetic content, available for thermal heating of digestion chambers and for factory heating. To take a solution at the gas over production is provided a storage gas tank.

The gas line is composed by:
gasometer, gas flare, 1 heaters and 2 cogeneration groups.

VENTILATION SYSTEM

During Sompunt plant engineer studies, a special importance matter was the particular attenzion at stinks emossions monitoring.
Exhaust air from the pre-treatment plant is transported to the scrubber using ventilators with an output of 15,000 Nm^3/h where it is then chemically cleaned.

COMPONENTS AND POWER

For sewerage system and sludges treatment were provided a total amount of 150 units divided into instrumentation, machineries, for a total amount of power consumption of approx 220 kW; the same items quantity were necessary for heating system, ventilation, air treatment, lightness systems, hydro feed exc.. For power plant, control and regulation of all these plants and systems, 25 km of bundles and cables were provided.


Sludge pretreatment
Sludge devatering
Final clarifiers
Transformer station
Final clarifiers
Workshop/Garage
Sludge pretreatment
Digester
Biological basin
Gasometer
Operational building
Preliminary clarifiers
Screening plant, areated grit chamber & ventilation system

IDA BASSA VAL PUSTERIA
Rio di Pusteria

CONSTRUCTION PROGRESS

Start of construction: 1994

Completion: September 1999

Beginning of operation and function tests: Oct. 1999 - Nov. 1999

In operation: since 1st December 1999

OPERATIONAL DATA

Yearly quantity of sewage: 1.430.000 m^3/a

Sludge quantity: 1.400 Tons/a

Produced electrical energy: 716.000 kWh/a

Efficiency:

BOD_5 = 99%

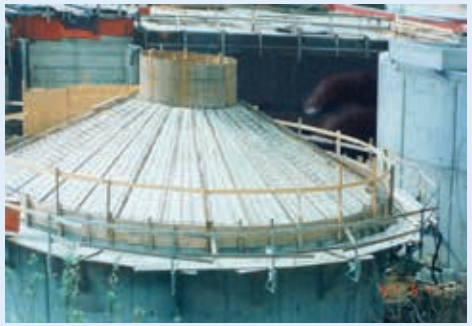
COD = 96%

N_{tot} = 85%

P_{tot} = 84%








IDA BASSA VAL PUSTERIA
Rio di Pusteria

MUNICIPALITIES

Municipality of **Rio di Pusteria**

Municipality of **Terento**

Municipality of **Vandoies**

Municipality of **Chienes**

Municipality of **Rodengo**

Municipality of **Falzes**

PERFORMANCE DATA

Capacity:	55.000 inhabitants equivalent
each	30% population
	45% from tourism
	25% from industry
Loads:	2.000 kg BOD_5/d
	3.300 COD/d
	350 kg N_{tot}/d
	60 kg P_{tot}/d
Sewage:	Daily quantity of sewage: 4.000 m^3/d
	Dry weather flow: 107 l/s
	Wet weather flow 300 l/s
Quantity of sludge:	row 182 m^3/d
	1.400 kg/d dried matter
	After primary sludge treatment 25 m^3/d
	After sludge dewatering 4,5 m^3/d
Tot. effective volume:	meccanical – biological
	treatment 8.546 m^3
	Sludge treatment 1.716 m^3
Tot. effective volume:	25.000 m^3

TECHNICAL DATA SEWERAGE SYSTEM

Catchment area: 333 km^2
Lenght Hauptsammler: 19,73 km
Diameter: 250 mm – 500 mm
Material: PVC, GFK, GG, STZ, SB
Quantity drains: 343
Quantity measuring stations: 6
Quantity Pump stationes: 5

TECHNICAL DATA

Pump station:

3 screw conveyor, 800 mm,

Tilt angle 33°; Q_{max} 100 l/s

Screening plant: 2-line

1 bar-screen, wide 1.300 mm

Bar spacing: 10 mm; Q_{max} = 1.080 m^3/h

by 1 screenings wash presses integrated

and bagging decive

Aerated grit chamber: 2-line; each line

Grit chamber: diameter = 5,30 m;

Volume 50 m^3; T = 6 min by Q_t

Grit washer Q_m = 16 l/s

Preliminary clarifier: 1 line

Diameter D = 18,5 m

Water depht 2,95 m

V = 844 m^3.....t = 2,19 h by Q_t

sludge scraper

Biological basin: 2-line, each Line

Aerob basin 1 basin = 440 m^3

Anox basin 1 basin (Denitrification) = 440 m^3

Aerob 3 basins (Nitrification) = 1.320 m^3

6x 132 pieces plate aerator

2x 123 pieces plate aerator

Volume - Aerob basin 880 m^3

Volume - Denitrification 880 m^3

Volume - Nitrification 2.640 m^3

Volume - Total A + VD + VN = 4.400 m^3

4 vertical agitator

Recirculation pumps 2x Q = 190 l/s

3 compressors, each: 1.800 Nm^3/h, 45 kW

Final clarifier: 2 basins

Circular basin D = 25,60 m

Water depht 4,00 m; V = 2x 2.043 m^3

sludge scraper

Phosphote precipitation:

Simultaneous precipitation

Quantity of row sludge:

Row sludge 182 m^3/d by 1.500 kg TS/d

and 30 m^3/d after primary sludge pretreatment

Pre-thickeners: 1 piece

Diameter 10 m; Volume = 1x 350 m^3

Rabble rakes, sludge water separation

Primary sludge pretreatment:

screencloth, Conditioning by

Polyetectrolytes Q = 15 m^3/h

Secondary sludge pretreatment:

Disc thickener, Conditioning by

Polyetectrolytes Q = 15 m^3/h

Strainpress:

Q = 10 m^3/h

Digestion chambers: 1 piece

Cylindrical tank D = 12,00 m; H = 11,26 m

Usable volume = 1.056 m^3

Digestion time 50 days

Circulation by biogas + pumps

Post thickeners: 1 piece

Diameter = 10,00 m; Volume = 1x 310 m^3

Rabble rakes, sludge water separation

Gasometer:

Cylindrical enclosure in steel construction

Gas membrane accumulator;

Usable volume 300 m^3; H = rd. 8,0 m

Gas flare plant:

Capacity = 100 m^3/h

Gas compressor station:

2 radial compressors

1 screw press, Conditioning by

Polyetectrolytes, Q = 3 – 5 m^3/h

Sludge storage:

loaded by screw conveyor

Ventilation system:

Chemical area treatment scrubber

From sludge treatment and building:

21.000 m^3/h

Heating system plant by 2 boiler plants

each 115 kW thermal capacity by switching

automatically for methane gas or biogas

Gas engine plant:

2 pieces each

P_{tot} = 190 kW; P_{el} = 60 kW; P_{th} = 99 kW

for propane and biogas

Deep well – industrial water:

2 pieces of pumps, each 11 l/s

SEWAGE TREATMENT LINE

The sewage treatment plant was dimensioned and engineerized for a 55.000 inhabitants equivalent capacity, in the way to satisfy the needs of population in local areas, of tourism, of industry and artisan shipment, guarantying in the meanwhile higher levels in quality, with the maximum efficiency in organic pollutant load knocking down and phosphoric and nitrogen components strong reduction. The target of sewage treatment is reached with physical, biological, chemical and biochemical processes. The mechanical sewage, with a 25% organic load reduction efficiency, is assured by a spire screen, by aerated grit chamber, bar-screens and primary clarifier. After that, the sewage treated mechanically cross a series of 5 falls: in the first one, in totally oxygen absence, takes place the bio-chemical process of partial phosphoric compounds deleting, in the second one, the nitrous compounds reduction is realized (denitrification) while in the last three, the biggest ones, atmospheric oxygen is injected to permit la biodegradation of organic compounds and nitrous compounds oxidation (nitrification). The recycle of vented sewage, of actives sludges and the regulation of oxygen concentration, permit the creation of an ambient in which microorganisms and various nature batteries may easily do the proper work of degradation of pollutant load. These microorganisms, in bow structures, are the actives sludges that are separated by sedimentation in the big secondary clarifier. The last reduction of phosphoric compounds is obtained by simultaneous precipitation (adding chemicals agents).

The water's superior layer, now purified, flows out on toothed threshold, is analyzed by a measurement and metering station (for quality and flow rate), and flows out into Rienza river.

GAS & SLUDGES TREATMENT LINE

The sludge coming from the first clarifiers (primary sludge) is thickened mechanically by a pre-thickener. The sludge is now eliminated from secondary clarifiers and thickened mechanically by disc thickener. The pre-thickened sludges are now reached at a temperature of 38°C approx and digested into an anaerobic digestion chamber. The sludges, now stabilized and neutrals, are dried with a screw press.
During the digestion process, the microorganisms transforming the organic compounds on CO2 and methane with high energetic content, available for thermal heating of digestion chambers and for factory heating. To take a solution at the gas over production, in the Bassa Val Pusteria plant is provided a storage gas tank.

The gas line is composed by:
gasometer, pressurization station, gas flare, 2 heaters and 2 cogeneration groups.

VENTILATION SYSTEM

During Bassa Val Pusteria plant engineer studies, a special importance matter was the particular attention at stinks emissions monitoring. All the stronger sources and ways of stinkness (fine bar screen, aerated grift chamber, clarifier and the entire sewerage treatment plant) are positioned on warehouses with the proper air purification system.
The stink air, until a flow rate of 21.000 m^3/h, is purified with scrubber at crossing flows system with, storing the thermal energy produced.

COMPONENTS AND POWER

For sewerage system and sludges treatment were provided a total amount of 120 units divided into instrumentation, machineries, for a total amount of power consumption of approx 200 kW; the same items quantity were necessary for heating system, ventilation, air treatment, lightness systems, hydro feed exc.. For power plant, control and regulation of all these plants and systems, 25 km of bundles and cables were provided.

ARA
PUSTERTAL · PUSTERIA

IDA TOBL
San Lorenzo di Sebato

IDA SAN CANDIDO-SESTO
San Candido

IDA WASSERFELD
Monguelfo

IDA SOMPUNT
Badia

IDA BASSA VAL PUSTERIA
Rio di Pusteria

ARA

PUSTERTAL · PUSTERIA

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BS OHSAS 18001:2007 NR.00445/0

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