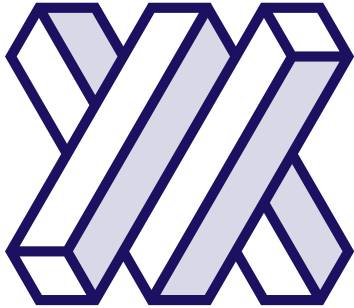




# Almenna

Consulting Engineers





"Almenna Consulting Engineers emphasizes reaching out continuously for the latest technology, in order to give its clients quick and quality-based services at a fair price."



**FROM  
CONCEPT  
TO CONSTRUCTION**

# Modern Expertise Grounded in Experience



Almenna Consulting Engineers Ltd. (Almenna) was established in 1971, as successor to the engineering contractor and consulting firm Almenna Contractors Ltd., established in 1941. During its 30-year lifespan, Almenna Contractors was one of the largest general contracting and engineering consultants in Iceland. The firm played a major role in the infrastructure development and industrialization, that began in the post-war years in Iceland.

All the founder members of Almenna worked for Almenna Contractors, enabling Almenna Consulting Engineers to draw on decades of experience. The company has also constantly assimilated new technologies in addition to the in-house base available when it was established. Today Almenna is a modern, general knowledge-based company, where the client's needs, quality and economical solutions are the guidelines.

At the beginning, Almenna's consulting activities were limited to civil engineering projects, and planning and appraisal work.

In 1982, the company engaged its first mechanical engineer, and since then, the design of HVAC has become a growing part of operations, along with consulting work on waste water treatment and general environmental issues.

Almenna strengthened its capability in environmental services in 1999, when the first geologist was recruited to the company. Since that time, environmental impact assessments, general geological consulting and mapping, among other things, have been added to the former fields of service at Almenna.

All the shareholders of Almenna are employed by the company, which is also the firm's objective.

Almenna's headquarters are located in its own building at Fellsmúli 26, Reykjavík. In addition, the company runs branch offices in Akranes in West Iceland, Reykjanesbær in South-West Iceland and Fjarðabyggð in East Iceland.

Almenna is a member of the Association of Consulting Engineers in Iceland (FRV), which is a member of the International Federation of Consulting Engineers (FIDIC).



# Projects and Fields of Service



Almenna's headquarters at Fells múli 26, Reykjavík

Photo: Almenna

## Projects and fields of service

Since its founding, Almenna Consulting Engineers has been involved in many of the largest projects undertaken in Iceland by the state, communities and private companies, either alone or as a member of Icelandic and/or international JV groups.

For these projects, Almenna has supplied planning, project management, engineering design and supervision services, among other things, and in recent years, it has become increasingly involved in geological studies and environmental impact assessments.

These projects include:

- Government buildings
- Industrial plants
- Sewage treatment plants and water supply systems
- Hydroelectric power plants
- Roads and bridges
- Airports and airfields
- Harbours

Almenna's consulting services consist of general technical assistance in accordance with the wishes of its clients, ranging from field investigations, planning and pre-feasibility studies, to the final engineering design, construction and operation.

Almenna's services can be classified under the following main categories:

- Pre-feasibility studies and field investigations
- Project planning and feasibility studies
- Surveying and mapping
- Design and preparation of tender documents
- Project management
- Construction supervision and inspection
- Maintenance of structures
- Cost estimates and appraisals
- Geological studies and environmental impact assessments
- 3D visualization and technical graphics

Since its founding, the company has been involved in a great number of projects, as listed on the company's website [www.almenna.is](http://www.almenna.is).

## Organization

Almenna Consulting Engineers is divided into five divisions of expertise:

- Building design division
- Mechanical and electrical design division
- Hydropower and transportation division
- Environmental services division
- Project management division

along with three supporting divisions:

- Drafting division
- Information division
- Financial division

An experienced project manager is assigned to each project, and he is responsible for the progress, cost and quality of all work performed.



Employees on a trip in Emstrur, South Iceland

Photo: Almenna

## Personnel and equipment

The total number of employees at Almenna Consulting Engineers comes to approximately 60. They possess a wide variety of technical knowledge and experience, gained from education and work, both in Iceland and abroad: in Scandinavia, Britain, Germany and the United States. The knowledge and skills of our staff are also assured by the company's firm policy of continuing education and attention to employee concerns, as Almenna's personnel make up its greatest asset. Information on the education, field of specialization and experience of Almenna's employees is listed on the company's website [www.almenna.is](http://www.almenna.is).

In addition to powerful computer hardware and software, Almenna owns various kinds of surveying, testing and investigation equipment, such as devices for sampling and testing concrete quality, Troxler equipment for density and moisture measurements in soil, Isco flowmeters for sewage systems, Point Load devices for measuring the strength of bedrock, borehole water-level meters, Cobra-drills and GPS-surveying stations.



Penetration drilling at Langisjör Photo: Almenna

## Quality Management System

A Quality Manager is employed by Almenna Consulting Engineers, in addition to a three-member Quality Board, which is responsible for the construction and maintenance of the company's quality management system. The Quality Manager also participates in preparations for and follow-up on quality management for individual projects.



Quality management within the company is based among other things, on organizational structure, the division of responsibilities and duties, and the work procedures employed. A well-defined quality management system has been in operation since 1996. At the beginning of 2002, the company board decided to improve the existing system, in order to make it fully consistent with the international standard ISO 9001-2000 and obtain certification.

## Subsidiary firms

Almenna Consulting Engineers owns a half-share in Innivist Ltd., a company that specializes in the investigation of indoor environments, including air quality, temperature, humidity, sound and other parameters that affect peoples' indoor comfort.

Almenna also holds a half-share in Mat Ltd., a company that

has undertaken the supervision and inspection of various major road and construction projects in recent decades.

Through the Icelandic organization Enex Ltd. (formerly Virkir Engineering Group Ltd.), Almenna has acquired considerable experience in the export of expertise in the field of geothermal energy.

As part-owner of the Arkverk Group Ltd., Almenna has carried out considerable engineering work for the U.S. Navy at the Keflavík Military Base in Iceland, either directly or as a sub-contractor to U.S. design firms.

## Almenna's main fields of service:

- Geotechnical engineering
- Hydraulics and hydrology
- Traffic engineering
- Road and airfield engineering
- Structural engineering, including earthquake analysis
- Fire-safety engineering
- Acoustical engineering
- HVAC
- Mechanical engineering
- Electrical engineering
- Municipal technology
- Environmental technology
- Geology
- Design and construction management
- Supervision and inspection
- Maintenance advice
- Surveying
- Cost estimates and appraisals
- 3D visualization and technical graphics



# Government Buildings – Large Structures



Head office of Reykjavik Energy

Photo: Almenna

During the years 1941-1971, the firm of Almenna Contractors was heavily involved in most building projects undertaken for the Icelandic government, other public institutions and the country's largest companies, either as contractor or designer. Examples of such buildings in Reykjavik include:

- Hafnarhvoll
- Austurbær Cinema
- Reykjavik Hospital in Fossvogur
- Central Bus Station, BSÍ
- Iceland School of Education
- Police Station
- Nordic House
- Customs House
- University of Iceland, Árnagarður and Lögberg
- Iceland Prime Contractor's building at Höfðabakki

and outside Reykjavik:

- Church and school at Skálholt
- Kópavogur Church

Since its founding, Almenna Consulting Engineers, has carried out structural design for a large number of public buildings. Since 1982, Almenna has also been increasingly involved in the HVAC design of such buildings. This group of structures includes some of the largest projects undertaken in Iceland in recent decades:

- Langholt Church in Reykjavik
- Reykjavik City Theatre
- Central Bank of Iceland
- Bústaðir Church in Reykjavik
- Múlastöð, telephone central and service centre for Iceland Telecom
- Leifur Eiríksson Air Terminal at Keflavik Airport
- Reykjavik City Hall
- Garðabær Sports Centre
- Fjörðurinn, office and shopping complex in Hafnarfjörður
- Air-Traffic Control Centre at Reykjavik Airport
- Supreme Court of Iceland

- Service building for Alþingi (Icelandic Parliament)
- University of Akureyri
- Extension of Leifur Eiríksson Air Terminal at Keflavik Airport
- Children's Hospital of Landspítali – University Hospital of Iceland
- Head Office of Reykjavik Energy
- Indoor Swimming Pool and Health Centre in Laugardalur, Reykjavik

On three occasions, Almenna has been granted a special award for its HVAC designs by the Icelandic Heating, Ventilating and Sanitary Association.



Extension of Leifur Eiríksson Air Terminal at Keflavik Airport

Photo: Mats Wibe Lund



Garðabær Sports Centre

Photo: Almenna



Reykjavik City Hall

Photo: Emil Þór Sigurðsson



Children's Hospital of Landspítali – University Hospital of Iceland

Photo: Almenna



Skyggirnir earth station

© Rafteikning hf – Photo: Rafn Sig.

For decades, Almenna Consulting Engineers has designed, supervised and performed maintenance inspection of masts and antennas for enterprises such as Iceland Telecom and the Icelandic National Broadcasting Service. These projects include:

- Mast at Gufuskálar
- Masts at Vatnsendi
- Skyggirnir earth station
- Mast at Skálafell
- Mast at Eiðar



Mast at Gufuskálar

Photo: Mats Wibe Lund



# Factories and Industrial Plants



Icelandic Alloy's ferrosilicon plant at Grundartangi

Photo: Mats Wibe Lund

From the very beginning, Almenna Contractors and its successor Almenna Consulting Engineers have been heavily involved in the industrialization of Iceland, especially power-intensive industry in recent decades. Almenna has undertaken consultancy work in the planning, preparation, design and construction phases of these projects.

Examples include:

- Herring factories throughout the country
- Dairy factories throughout the country
- Iceland Cement in Akranes
- State fertilizer plant in Gufunes
- Álafoss wool factory in Mosfellsbær
- Diatomite plant at Lake Mývatn
- Hampiðjan factory in Reykjavík

Almenna played a major role in the planning, design and construction supervision of Icelandic Alloy's ferro silicon Plant at Grundartangi, both during the first two phases in 1975-1980, and the third furnace extension for the plant in 1997-2000.

Almenna has also acted as consultant for waste water treatment for various processing factories, including.

- Laugafiskur fish drying factory
- Kjötmjöl meat meal factory



Waste water treatment unit for an industrial company

Photo: Almenna



Almenna has served as the official building authority at the building site of Nordic Aluminum at Grundartangi

Photo: Mbl./Porkell Þorkelsson



Silfurlax Salmon Farm in Ölfus

Photo: Almenna

Almenna has also been involved in the development of the aquaculture industry in Iceland. Examples of these projects include:

- Íslandslax salmon farm in Grindavík
- Silfurlax salmon farms in Ölfus and Hraunsfjörður
- Mikililax salmon farm in Fjót
- Lindalax salmon farm in Vogar
- Reykjavík Energy experimental prawn farm in Ölfus



Iceland Cement in Akranes

Photo: Friðrik Friðriksson



Diatomite plant at Lake Myvatn

Photo: Mbl./Kristján Kristjánsson



# Hydroelectric Power Plants



Vatnsfell Hydropower Plant

Photo: Emil Þór Sigurðsson

During its lifespan, Almenna Contractors was involved in the construction of most large hydroelectric power plants in Iceland, including:

- Andakilsá Hydropower Plant
- Extension of Ljósafoss Hydropower Plant
- Írafoss Hydropower Plant
- Steingrímsstöð Hydropower Plant
- Mjólká Hydropower Plants I and II
- Búrfell Hydropower Plant

Almenna Consulting Engineers, has also been heavily involved in the planning, design and/or construction phases of many of the larger hydropower plants that have been planned and built in connection with various power-intensive industry projects in Iceland.

Almenna has also served as a consultant for the renovation and refurbishment of the hydropower plants, such as those at Sog river.



Ljósafoss Hydropower Plant

Photo: Almenna



Írafoss Hydropower Plant

Photo: Almenna

Examples of projects in which Almenna Consulting Engineers has participated:

- Mjólká Hydropower Plant III
- Fljótsdalur Hydropower Plant
- Extension of Búrfell Hydropower Plant
- Hrauneyjarfoss Hydropower Plant
- Blanda Hydropower Plant
- Refurbishment of hydropower plants at Sog river (Ljósafoss, Írafoss, and Steingrímsstöð Power Plants)
- Háganga Water Storage
- Vatnsfell Hydropower Plant
- Kárahnjúkar Hydropower Plant
- Núpur Hydropower Plant
- Skaftá Diversion
- Norðlingaalda Diversion
- Skaftá and Hólmsá Hydropower Plants

Almenna has also been involved in the construction of many switchgear/transformer stations and substations, including those for the Icelandic National Power Company, the State Electric Power Works and Reykjavík Energy.



Dam site at Fremri-Kárahnjúkur (Kárahnjúkar Hydropower Plant)

Photo: Almenna



Hvammur Hydropower Plant, one of the options in harnessing Neðri-Þjórsá River (3D visualization)

Photo: Almenna



# Transport Structures



Hringvegur road, flyover connection at Víkurvegur road

Photo: Almenna

## Roads/Bridges

Among the first projects handled by Almenna Contractors was the development of the Reykjavík street system. Almenna Contractors, and later Almenna Consulting Engineers were heavily involved in the preparation, design and supervision of projects to build the first paved roads leading north and east from Reykjavík (Vesturlandsvegur and Suðurlandsvegur).

Since its founding, Almenna has also been involved in the design and supervision of numerous other road and bridge construction projects.

Examples include:

- Road links to the radar stations on Gunnólfsvíkurfjall and Bolafjall
- Hringvegur road from Rauðavatn lake to Nesbaut road
- Bridge over Hringvegur road at Bæjarháls street
- Widening of Nesbraut road from the street Höfðabakki to the district Grafarholt
- Reykjanesbraut road, flyover connection at Grindavíkurgvegur road
- Widening of Vesturlandsvegur road in Ártúnsbrekka slope
- Widening of Hringvegur road from Nesbraut road to Víkurvegur road
- Hringvegur road, flyover connection at Víkurvegur road
- Bridge over Hringvegur road at Víkurvegur road
- Hringvegur road/Nesbraut road interchange
- Reykjanesbraut road in Hafnarfjörður
- Bridge over Fjarðará in Seyðisfjörður

## Airports

Almenna Contractors' significant involvement in airport construction began in 1949, when the company drew up plans for an airport in Akureyri, located alongside the fjord Eyjafjörður. For the first time in Iceland, there was a proposal to pump sand from a nearby riverbank, in order to form a sub-base for a runway.

Since its founding, Almenna Consulting Engineers, has acted as a comprehensive consultant for the construction and upgrading of several Icelandic airports and airfields, including those in:

- Egilsstaðir
- Hornafjörður
- Patreksfjörður, Bíldudalur, Þingeyri and Ísafjörður
- Sauðárkrúkur, Akureyri, Húsavík and Þórshöfn
- Vestmannaeyar and Bakki

The firm has also been involved in:

- The rehabilitation of Reykjavík Airport
- Aprons at Keflavik International Airport



Egilsstaðir Airport

Photo: Mats Wibe Lund



Reykjavik Airport



Seyðisfjörður Harbour

Photo: Hönnun

Almenna Consulting Engineers was a consultant for the preparation, design and construction phases of the new Lefkur Eiríksson International Air Terminal, both during the initial phase in 1980-1987, and the extension in 1999-2001. It also acted as a consultant for the new Air Traffic Control Centre at Reykjavik Airport.

## Harbours

Since 1955, engineers at Almenna Contractors and later Almenna Consulting Engineers have provided a great deal of technical knowledge for the preparation and construction of many harbours throughout the country, and since 1960, the firm has been the chief design consultant to the Port of Reykjavik, participating in the development of the Sundahöfn cargo port, which is by far the largest commercial harbour in Iceland.

Examples of the firm's harbour projects are:

- Reykjavík Harbour
- Þorlákshöfn Harbour
- Sundahöfn Harbour, Reykjavík
- Grundartangi Harbour
- Helguvík Harbour
- Eyjagarður Harbour at Örfirisey, Reykjavík
- Sandgerði Harbour
- Seyðisfjörður Harbour



Sundahöfn Harbour, Reykjavik

Photo: Mats Wibe Lund



Preloading of a building site on a reclaimed land at Vogabakki, Sundahöfn Photo: Almenna



# Municipal Installations



Waste water treatment plant at Klettagarðar, Reykjavik

Photo: Almenna

During its lifespan, Almenna Contractors provided consultant services to local communities on municipal installations, such as street and road construction, and in geothermal district-heating, water distribution and waste water systems.

In addition to the above fields of service, Almenna Consulting Engineers has, during the last decade, increased its emphasis on consultation for waste water treatment and general environmental issues.

For many years now, Almenna has carried out projects involving the main sewage systems and the construction of waste water treatment plants for Reykjavik and other municipalities in the capital area, as well as being involved in similar work for the towns of Reykjanesbær, Hólmavík, Grundarfjörður and Akranes.

In recent years, Almenna has also acted to an increasing degree as a consultant on traffic noise assessment and in its effects in residential areas.



Waste water pumping station in Garðabær

Photo: Almenna



Renewal of municipal distribution systems in the older districts of Reykjavik Photo: Almenna



Step screens in the waste water treatment plant at Klettagarðar, Reykjavík

Photo: Almenna



Installation of a Ø1,4 m main waste water pipe in Leirvogur, Reykjavík

Photo: Almenna

Examples of projects in the field of municipal installations include:

- Street and road construction in Mosfellsbær, Grundarfjörður, Hólmavík and Fellabær
- Water distribution systems, for Reykjavík, Hafnarfjörður, Grundarfjörður and Hólmavík
- Waste water systems for Reykjavík, Garðabær, Reykjanesbær, Hólmavík, Grundarfjörður and Akranes.
- Waste water treatment plant at Ánanaust, Reykjavík
- Waste water pumping station in Garðabær
- Waste water treatment plant in Reykjanesbær
- Waste water treatment plant at Klettagarðar, Reykjavík
- Renewal and reconstruction of municipal distribution systems and sidewalks in the older districts of Reykjavík
- Flatahverfi district in Akranes, streets and municipal distribution systems in a new residential area
- Norðlingaholt district in Reykjavík, streets and municipal distribution systems in a new residential area
- Traffic noise assessment, for Reykjavík, Kópavogur, Hafnarfjörður and Mosfellsbær



Wastewater collection system in Norðlingaholt

Photo: Almenna



# Project Management and Appraisals



Children, looking at a damage caused by the South-Iceland earthquakes in the year 2000

Photo: Mbl./Ragnar Axelsson

Over the years, Almenna Consulting Engineers has been entrusted with the management and supervision of a number of projects, generally in close collaboration with the clients or their project committees. For these projects, the experience inherited from its predecessor Almenna Contractors has proved invaluable.



The presidential residence at Bessastaðir after renovation

Photo: Almenna

Examples of work of this kind include:

- Clean-up operation in the Westman Islands following the volcanic eruption in 1973
- Localizing committee for power-intensive industry in Iceland
- Central Bank of Iceland
- Headquarters of the Icelandic National Broadcasting Service
- Icelandic National Library
- Warehouse and wholesale complexes Heild II and III at Skútuvogur, Reykjavík
- Renovation of the presidential residence at Bessastaðir
- New premises for Marel Manufacturing in Garðabær

For decades, Almenna has undertaken appraisal and cost-estimate services for many institutions, companies and individuals. Almenna has been the chief consultant to the Icelandic Catastrophe Insurance Association for many year, engaged in assessing the damage caused by natural disasters. Examples of projects in this field include:

- Estimate of damage to residential housing in the Westman Islands following the volcanic eruption in 1973
- Re-evaluation of the Icelandic herring industry
- Value appraisal of Icelandic real estate
- Estimate of damage caused by flood tides in Akranes and Patreksfjörður
- Estimate of damage caused by snow avalanches in Súðavík and Flateyri
- Estimate of damage in Skeiðarársandur caused by run-off from subglacial eruptions
- Estimate of damage caused by the South-Iceland earthquakes in 2000
- Appraisal of the Stjörnubíó Cinema lot in Reykjavík
- Appraisal of the holdings of Landsafl Real Estate Inc.



Central Bank of Iceland

Photo: Emil Þór Sigurðsson

# Maintenance of Structures



Apartment houses at Asparfell 2-12 in Reykjavík

Photo: Almenna



Steingrimsstöð Hydropower Plant

Photo: Almenna

For many years, Almenna Consulting Engineers has undertaken consultancy in connection with the maintenance and renovation of structures, a field in which the company has gained extensive expertise and experience.

This consultancy work includes maintenance appraisals, solution analyses, design, cost estimates and the preparation of tender documents, work supervision and future maintenance scheduling.

Examples of successful projects of this type include:

- Properties of the Húsfélag alþýðu association in Hringbraut, Bræðraborgarstígur, Ásvallagata, Hofsvallagata and Brávallagata in Reykjavík
- Apartment houses at Kjarrhólmi 2-38 in Kópavogur
- Apartment houses at Asparfell 2-12 in Reykjavík



Former head office of Reykjavík Energy

© Raftelkning hf – Photo: Rafn Sig.

- Former head office of Reykjavík Energy at Suðurlandsbraut in Reykjavík
- Refurbishment of hydropower plants at Sog river (Ljósafoss, Írafoss and Steingrimsstöð Power Plants)
- Rehabilitation of Borgarfjörður Bridge supports
- Central Bank of Iceland

Almenna also provides service for the preparation of joint property-sharing agreements.



# Environmental Impact Assessments and Geological Investigations



Core drilling at Langisjör

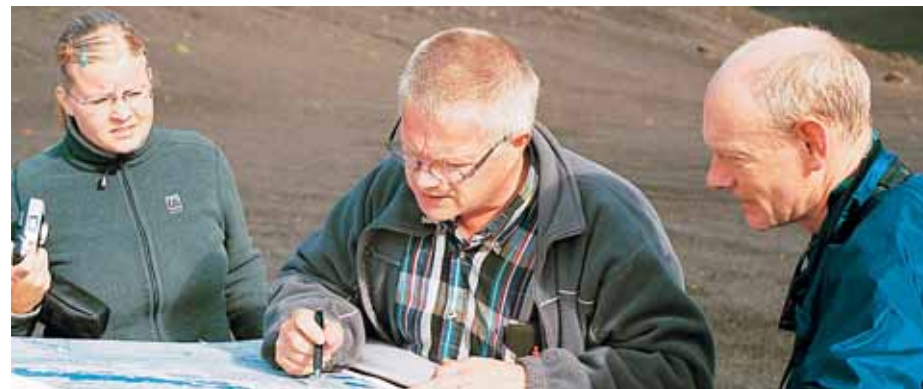
Photo: Almenna



Run-off water settling pond at Hringvegur/Vikurvegur road intersection Photo: Almenna

For the past few years, Almenna Consulting Engineers has been able to offer highly qualified service in the fields of environmental and geological consulting by recruiting natural scientists, including experienced geologists, with extensive knowledge in their specialized fields.

The services provided include environmental impact assessments, groundwater surveys, contamination studies, and general geological consulting and mapping.



Checking documents and data during field trip at Langisjör

Photo: Almenna



Almenna has greatly increased its services in hydrological measurements Photo: Almenna

Examples of such projects in recent years include:

- Environmental impact assessment for the Hringvegur road, flyover connection at Víkurvegur road
- Environmental impact assessment for Núpur Hydropower Plant
- Environmental impact evaluation for Blanda Hydropower Plant
- Environmental impact assessment for Skaftárveita Diversion
- Groundwater investigations in connection with the Skaftárveita Diversion project
- Oil spill contamination and acoustical evaluation at Hjallasvæði area in Reykjanesbær
- Run-off water settling pond at Hringvegur road, flyover connection at Víkurvegur road
- Bedrock investigation for Núpur Hydropower Plant
- Bedrock investigation for Skaftárveita Diversion
- Bedrock investigation for Skaftá and Hólmsá Hydropower Plants
- Assessment of the geothermal area in Krísuvík



Base station and radio ready for GPS-surveying

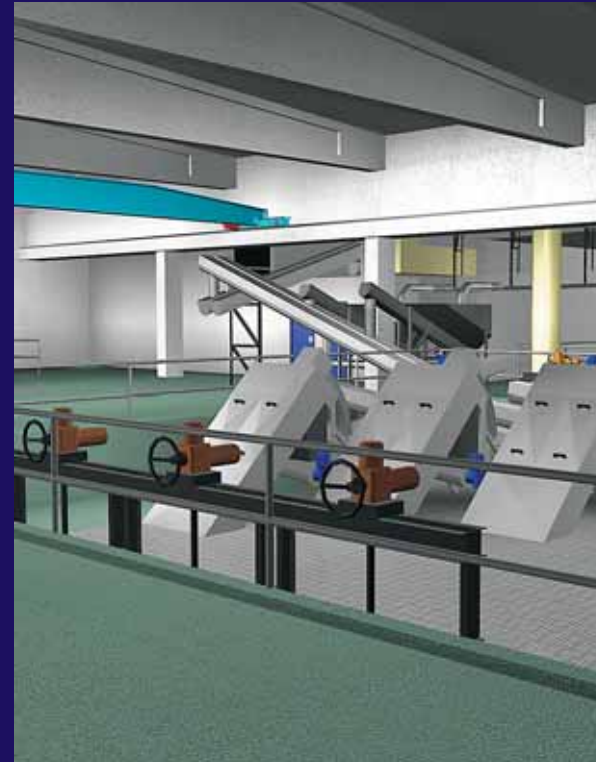
Photo: Almenna



Monitoring of groundwater temperature in a borehole in Skaftártunga

Photo: Almenna





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