BDH Engineering Zrt Budapest - Background

- Budapest Global Engineering Center (GEC) started in 2006
- Entity Status – Branch office of Balcke-Dürr GmbH
- Managed as shared engineering service since 2010
- Design Office supporting SPX Cooling Technologies, Balcke-Dürr, and SPX Heat Transfer
- Legal successor of Balcke-Dürr GmbH Hungarian Branch by a Business Transfer Agreement since 2017
- New company owned by the Management in 100%

Current Status:
- 31 Employees (27 Engineers reporting hours)
- 21 Mechanical Engineers & 6 Civil / Structural Engineers (with several decades of design skills)
- Staff is to be extended as needed

Capabilities:
- Mechanical Calculation / Design
- Solid Modeling – Creo, Tekla, Solid Edge, PDMS
- Piping Calculation / Design
- Structural Calculation
- Hungarian Nuclear Power Plant Certification and TBT certificate
- Design references in Paks 1 NPP (Hungary) and Paks2 NPP (Hungary), Loviisa and Olkiluoto NPPs (Finland), Forsmark and Oskarshamn NPPs (Sweden), Rostov NPP (Russia)

Communication skills:
- english
We are using different up-to-date high quality PC- softwares

- **PDMS 3D** plant (piping) design software
- **Pro Engineer/CREO** equipment design software
- **XSteel** steel structure design software
- **AutoCad 2D/3D** drawing software
- **Rohr2** pipe stress analysis software
- **Rstab** steel structure analysis software
Professional Software Knowledge

Thermal & Strength Calculation

- **HTRI**  thermal calculation for heat exchangers
- **Dimy**  strength calculation design software
- **AxisVM**  concrete structure design software
- **CAEpipe**  pipe design software
- **SolidEdge**  equipment design software

**Design Codes**
Design capability to customer specification
Knowledge of various codes including:
EN, DIN-EN, ASME, AD-2000, TRD
Main Activities in nuclear power plants

Component Design
  Pressure vessels (level vessels, collecting vessels, flash tanks)

Design of piping systems

Civil Engineering
  Steel Structure
  Reinforced Concrete design

Manufacturing QA-survey and supervision

Site supports

Certificates, permissions, entry cards
Component Design
Pressure vessels (level vessels, collecting vessels, flash tanks)

- Process calculations for the components
- Strength and mechanical calculations
- 2D/3D model building
- Preparing workshop drawings
- Preparing transportation drawings
- Data supply for pipeline design
- Data supply for steel structure design
- LISTS: Weld lists; Material lists (BOM), etc.
- Site survey
- Designer support and supervision of factory manufacturing and construction checking
- Designer support and supervision of site erection and commissioning
Forsmark NPP Sweden
Design of Level and Collecting Vessel
Oskarshamn 2, Sweden
Design of HP - LP Level Vessel and Flash Tank
Design of piping systems in various NPPs

- **Forsmark TU1,2 NPP, Sweden (2006-2010)**
  - Design of piping system connected to new Moisture Separator Reheater (MSR),
  - Design of Collecting & Level vessels

- **Oskarshamn NPP, Sweden (2009-2013)**
  - Design of piping system connected to new MSR,
  - Design of LP & HP heaters,
  - Design Collecting & Level vessels

- **Paks NPP Unit 1-4, Hungary (2013)**
  - Basic design of new demineralized water system

- **Loviisa NPP, Finland (2015)**
  - Design of piping system connected to new MSR

- **Olkiluoto NPP, Finland (2016-2017)**
  - Design of piping system of new steam-ejectors and condensers

- **Paks NPP Unit 5-6, Hungary (2017)**
  - Basic design of Compressed air supply plant and Nitrogen supply plant
Piping engineering and design activities performed

- 3D model with PDMS software
- Preparing isometrics
- Pipe support workshop drawings
- Special pipe elements, nozzle drawings
- Layout and cross section drawings
- Pipe strength and mechanical calculations
- LISTS: Weld lists; Material lists (BOM) (pipe, pipe support components, etc.), etc.
- Specifications: pipe elements, heat insulation, surface protection, components.
- Demolishing and cutting plans
- Civil load data supplies, drilling plans
- Hydraulic pressure loss calculation
- Site survey
- Designer support and supervision of factory manufacturing and construction checking
- Designer support and supervision of site erection and commissioning
International and National nuclear codes and standards observed

- **ASME BPVC SECTION III.** Rules for Construction of Nuclear Facility Components
- **EN 13480** Metallic industrial piping

**Nuclear Power Plants Regulations (Sweden)**
- **AFS 2010** Swedish Work Environment Authority
- **KBM Edition 6.0** Quality Regulations for Mechanical Equipment
- **TBM Edition 6.0** Technical Regulations for Mechanical Equipment
- **TBY Edition 2** Technical Regulations for Surface Treatment
- **SKIFS 2005** Swedish Nuclear Power Inspectorate’s Regulatory Code
- **SSMFS 2008** Swedish Radiation Safety Authority Regulatory Code

**Nuclear Power Plants Regulations (Finland)**
- **STUK** Radiation and Nuclear Safety Authority

**Nuclear Power Plants Regulations (Hungary)**
- **NBSZ** Nukleáris létesítmények nukleáris biztonsági hatósági eljárásai
Forsmark TU1, 2 NPP, Sweden (2006-2010)
Design of piping system connected to new MSR, Level and Collecting Vessel
Forsmark TU1, 2 NPP, Sweden (2006-2010)
Design of piping system connected to new MSR, Level and Collecting Vessel
Oskarshamn NPP, Sweden (2009-2013)
Design of piping system connected to new MSR, LP & HP heaters, Collecting & Level vessels
Oskarshamn NPP Sweden
Design of piping system connected to new MSR, LP Level vessels, Flash Tank, Steel support structure
Paks NPP Unit 1-4, Hungary (2013)
Basic design of new demineralized water system
Lovisa NPP, Finland (2015)
Design of piping connected to new MSR
Olkiluoto OL1 & OL2 NPP Finland (2016-2017)
Piping system for replacing Steam Jet Vacuum Ejectors and their Condensers

Condenser1
Condenser2
Condenser3
Ejectors
New steel structure
Partly new platform
Olkiluoto OL1 & OL2 NPP Finland
Design of piping connected to new Ejectors and Condensers
Olkiluoto OL1 & OL2 NPP Finland
Steel support structure
Olkiluoto OL1 & OL2 NPP Finland
Design of piping connected to new Ejectors and Condensers
Site activity
Paks NPP Unit 5-6, Hungary (2017)
Basic design of Compressed air supply plant

Service and instrument air dryers

Instrument air compressors

Service air compressors
Paks NPP Unit 5-6, Hungary (2017)
Basic design of Compressed air supply plant
Basic design of Nitrogen supply plant

- Low pressure atmospheric evaporators
- High pressure atmospheric evaporators
- Cryogenic liquid nitrogen tanks
- Compressed air building
- Pipe rack

Paks NPP Unit 5-6, Hungary (2017)
Civil engineering
in Nuclear Power Plants
Forsmark TU1, 2 NPP, Sweden (2006-2010)
Steel structure 3D Tekla model
Forsmark TU1, 2 NPP, Sweden (2006-2010)
Manufacturing QA-survey and supervision at Stahlbau Wendeler (Germany)
Forsmark TU1, 2 NPP, Sweden (2006-2010)
Site activity at Forsmark (Sweden)
Forsmark TU1, 2 NPP, Sweden (2006-2010)
Site activity at Forsmark (Sweden)
Loads: *for example water load*

**mx STRESSES ON THE MODELL:**

**USED REINFORCEMENT IN BOTH DIRECTION**
Oskarshamn NPP Sweden (2009-2013)
Steel Structure Design

PDMS 3D
Pipe route & equipment

Tekla
TEKLA
Steel structure & building
Oskarshamn NPP Sweden (2009-2013)
Manufacturing QA-survey and supervision at Kresta Industries (Austria)
Oskarshamn NPP Sweden (2009-2013)
Manufacturing QA-survey and supervision at Kresta Industries (Austria)
PAKS NPP Steel Structure Design (2013)
Steel structure 3D Tekla model
Olkiluoto Steel Structure Design (2016-2017)
Steel structure 3D model
Olkiluoto Steel Structure Design (2016-2017)

Structural analysis
Certificates, permissions, entry cards

Permissions & certificates

[Image of a document related to permits and certificates]
Certificates, permissions, entry cards

Permissions & certificates

CONGRATULATIONS

István Csöka

Have 2008-04-29 completed the Swedish OKG/Vattenfall education and knowledge test in Clean System with an approved result.

This certificate should be signed by you and your manager to certify that the course and the test have been completed by you.

Company: Belchir-Deur GmbH
Name: István Csöka
City: Budapest
Date: 2008-04-29
Socialsecurity: 567214
Signature:

Workmanager / coursemanager
City:
Date:
Signature:
Clarification of signature:

Securitycode: E200-89-AF5D
Valid up: 2011-04-29
Certificates, permissions, entry cards

Permissions & certificates

CERTIFICATE of ACHIEVEMENT

This is to certify that
Pal Villam
11.02.1995
has completed the course
Induction training - Radiation protection
April 3, 2017

TVO
Certificates, permissions, entry cards

Entry cards into Nuclear Power Plants
Working together with the authorities

Inspecta for NNP (Sweden)

Vattenfall (Sweden)

Balcke-Dürr GmbH
Frank Lange
Ernst-Dieterich-Platz 2
40882 Ratingen
Germany

Your ref: MSR304, MSR316
E-mail: 04-02-2010

Project TU12 MSR Forsmark 1, Review of Inspection Plans

Dear All,

We have reviewed the below mentioned ITP-Plans with comments,

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45
Working together with the authorities

Approved document by Inspecta (Sweden)
BDHE Budapest Office

• Space – 906 square meters
• Located in this office since 2006
Thank you for your attention!