

CURRICULUM VITAE

NORCONSULT INTERNATIONAL A.S., P.O.Box 626, N-1301 Sandvika, Norway

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Name: PETERSEN, Nils Christian
Job Title/Profession: Senior Engineer
Born: 1942
Nationality: Norwegian
Civil Status: Married, 3 children (1987, 1988, 1990)
Years with the Firm: 3 years, commencing 1991
Languages: English (excellent), German (fair)
Countries of Work
Experience: Norway, USA, Saudi Arabia, Thailand. (World wide as a sailor.)
Professional Societies: Norwegian Society of Chartered Engineers (NIF)

Key Qualifications:

Academic degree in electrical engineering, majoring in power systems. Excellent theoretical knowledge of electrical systems and equipment. Personal preference for technical jobs.

Major experience in the following fields: Power stations (hydroelectric and gas-fired), Medium-voltage switchgear, Low-voltage power supplies, Electric motor controls, Electrical installations in hazardous areas. Design and commissioning experience from utility applications, industrial plants and off-shore oil production platforms.

Operation and maintenance experience with electrical equipment and systems at all voltage levels up to 22 kV.

Education:

1968 M.Sc. Engineer in Electrical Engineering. University of Trondheim,

The Norwegian Institute of Technology (NTH)

1975 One year's course with written exam in "Operation, control and protection of Electrical Power Systems".

Marks above normal. University of Trondheim,

The Norwegian Institute of Technology (NTH).

Other Training:

1989a) Introduction to PC b) Work sheets on PC (NIF)

1987 High-voltage cable techniques (NTH/written exam, marks above normal)

1985 Electrical installations in hazardous areas (NIF)

1983 Semiconductor techniques for power application. (NTH/written exam, marks above normal)

1981 Rotating machinery of ships and offshore platforms. (NTH/written exam, marks approx. normal)

1980 SF₆ insulated electrical equipment (NIF)

1979 Design of control rooms (NIF)

Licences:

1971 Approved as qualified according to Norwegian Law as "Engineer in charge of high- and medium-voltage systems"

1987 Licensed as "Professional Engineer, Electrical" in the state of Massachusetts, USA

Licensed as "Professional Engineer, Electrical" in the state of Vermont, USA.

Experience Record:

- 1994-present **NORCONSULT INTERNATIONAL A.S., Sandvika, Norway**
Chief Engineer - Electrical
- 1991-94 **BERDAL STRØMME A.S. (PARTNER IN NORCONSULT),**
Oslo, Norway
Senior Engineer - Electrical
- 1994
- Ochoco Lumber Company - Lithuanian Project, Lithuania
Evaluation of existing installations and proposal for supply and distribution of electric power to saw mill and planer plant. (Anticipated peak demand 4 MW)
Client: Ochoco Lumber Company (USA)
Office: Oslo, Norway
 - Nuuk Hydropower Project, Greenland
Preparation of emergency plans for remotely controlled hydroelectric power station located on Greenland. (Installed capacity 30 MW).
Client: Nuuk-Kraft ANS
Office: Oslo, Norway
- 1993
- Masterplan for area around "Second Bangkok International Airport"
Assessment of power demand and proposals for grid extensions to meet needs imposed by the establishment of a new airport. Population increase in the area: 870,000 persons. Peak demand increase: 1100 MW.
Office: Bangkok, Thailand
 - Pangué Hydropower, Chile
425 MW reservoir type power station with 100 m head and Francis turbines. Temporary assignment as Chief Electrical Engineer for "turn-key" contract.
Office: Oslo, Norway
- 1991 - 93 **Seconded to ABV Rock Group, Saudi Arabia**
- Design of electrical systems for underground fuel storage plant.
ABV Rock Group is executing a project for storage of petrol products in sub terranean caverns in the Kingdom of Saudi Arabia. It is a turnkey project and comprehends infrastructure as well as storage installations in caverns from design and construction of all the facilities up to training of operations personnel. The project time is more than 5 years and several thousands of personnel are involved in the work.
Office: Riyadh, Saudi Arabia
- 1987 - 91 **HAFSLUND ENGINEERING A/S, Sandvika, Norway**
(Merger with Berdal-Strømme)
Senior Engineer - Electrical
- 1990 - 91
- Study aiming to develop methods for maintenance of hydroelectric power stations based on measurement and evaluation of the state of the different parts of the systems.
- 1990
- Sankt Halvard Transformer Station
Upgrading of 50 kV switchgear.
- 1987 - 89
- Brulandsfoss hydroelectric power plant

11 MW/13 MVA. Low head, run-of-river power plant with Kaplan turbine. Design, technical coordination and commissioning.

1985 - 87 **SWIFT RIVER/HAFSLUND CO., Mass., USA**
Engineering Manager/Chief Engineer - Electrical
Office: Danvers, Massachusetts, USA

-Feasibility studies, conceptual design, specifications, design review, technical coordination and commissioning of hydroelectric power stations. Technical coordination for wood-fired thermal electric power stations.
 Client: Swift River/Hafslund Company (Developer of power projects for renewable energy)

Major projects:

1986 - 87

- Brassua Lake Hydroelectrical Project, USA
 3,5 MW doubly regulated Kaplan turbine, generating head = 9.2 m. Discharge capacity = 45 m³/s. Responsible for electrical design throughout the feasibility study. Evaluation of generator installation and preparation of tender documents for electrical equipment.
 Client: Swift River/Hafslund Company

1985 - 87

- Errol Mini Hydropower Plant, USA
 3 MW Kaplan turbine (bulb type), generating head = 5 m. Control system philosophy, design review, technical coordination, follow-up during construction of power station, switch yard and upgrading of transmission line. Commissioning. (The project has a record of excellent performance both economically and technically during operation.)
 Client: Swift River/Hafslund Company

1985

-Azischos Mini Hydro Scheme, USA
 Power plant utilizing existing storage capacity of water supply reservoir. Selection of turbine, 7.5 MW Francis, generating head = 50 m. Evaluation of estimated cost for electrical installations. Project finally won by another developer. However, many of our conceptual features were adopted when the plant was designed.
 Client: Swift River/Hafslund Company

1978 - 85 **HAFSLUND CONSULTANTS, Oslo, Norway**
Project Engineer - Electrical

1984 - 85

- Oil Production Platform Gullfaks A (Statoil)
 Site Engineer, electrical and instrumental
 Modules: D21 Drilling and Mud Handling - D31 Pipe-rack

1981 - 84

- Oil Production Platform Gullfaks A
 Senior Engineer, generators, motors, earthing system, system layout, short circuit and grid stability.

1981

-Almagor Power Project
 Planning and design of a 100 MW hydroelectric power station. Electrical system in power station.
 Client: The Israel Electric Corporation Ltd. (Governmental Electricity Development Agency)

1980 - 81

- Oil Production Platform Ula Field
Lead Engineer, generators and high voltage supply.

1978 - 80

- Stiegler's Gorge Power Project, Tanzania.

Assisting the Chief Engineer. Planning and specification of the total electrical systems for 1200 MW hydroelectric power station.

Client: NORAD

1977

VARANGER KRAFTLAG A/S, Vadsø (Utility company)
Operations Manager and "Engineer in Charge" of high voltage systems

Operation and maintenance of electrical distribution systems in an area characterized by long transmission distances, low population density, and coastal climate with severe weather conditions.

1973 - 76

SIV.ING. OVE DRANGSHOLT A/S, Trondheim
Electrical Engineer/Consultant

Detailed design, supervision during construction and control of cost of electrical installations in industrial buildings. Experience with high, medium and low voltage power distribution and machinery control systems. Design of switchgears and hydropower stations.

1971 - 72

VARIOUS SHIPS (World wide trade)
Ship Electrician.

Maintenance of all types of electrical equipment onboard. Experience with 220 V-DC and 440 V-AC systems, and diesel-generating sets.

1969 - 71

A/S NORSK JERNVERK, Mo i Rana
Electrical Engineer

Planning and control of constructions for medium- and low-voltage systems. Theoretical investigation into the steel-smelting process in electric-arc furnaces. Evaluation of electrical losses in mechanical constructions induced by high currents passing near by.