**RESUME**

**Sergei Ivanov**

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| **PERSONAL DETAILS** |

**Education:** MSc in Chemical Engineering from St. Petersburg State Technical University, Russia, 2005-2010

**Residence:** Abu Dhabi, UAE

**Nationality:** Russian

**Date of Birth:** 29 February, 1988

**Languages:** English, Russian

**Status:** Married with two children

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| **SUMMARY** |

I have 13 years of experience in Oil & Gas and midstream Process Engineering. My design experience spans feasibility studies, FEED and detailed design phases of projects. I am very familiar with a wide spectrum of process engineer software. Working as a lead of group of process engineers, a mentor of junior process engineers in various aspects of process design. I have some operating company experience. My aspiration is for my next career move to join a major Company and extend my capabilities outside process engineering towards project leading and business development.

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| **ENGINEERING SKILLS** |

* Experienced in process equipment specification and provision of data sheets for columns, separators, pressure vessels, heat exchangers, pumps, valves and instruments;
* Strong knowledge on Concept, FEED and Detailed Design of upstream, pipeline, and downstream onshore production facilities; wide experience in development of Block Flow Diagrams, Process Flow Diagrams and Piping & Instruments Diagrams, Heat & Material Balances for gas and oil processes;
* Generation of Block Flow Diagrams, Process Flow Diagrams and Piping & Instruments Diagrams, Heat and Mass Balance (H&MB), phase transitions, thermal transfer;
* Performed flare systems calculations by Flare.Net and PSV relief calculations in accordance with API;
* Aspen HYSYS steady state and dynamics process simulations. Holding Aspentech Certified Expert certificate;
* ProTreat chemical and physical solvent treatment simulations.
* Aspen EDR heat exchanger design, various vendor design software;
* MS Excel design tools development and verification;
* Pipeline hydraulic and net hydraulic calculations of oil, gas, slurry and water systems for both steady state and transient cases. Experienced in Synergi Pipeline Simulator (SPS, Stoner), Pipeline Studio (TLNET and TGNET), PipeSim, AFT Fathom, EPANET, WaterGEMS software;
* Experienced in pressure vessel design according to ASME BPVC Sec VIII Div 1 and 2, strength calculations of pressure vessels and piping stress analysis, material selection for pressure vessels and piping. Holding ASME training certificate for Pressure Vessel Design according to ASME BPVC Sec VIII Div 1 and 2.

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| **EMPLOYMENT EXPERIENCE** |

**Advisian (Worley) (Abu Dhabi, UAE) Dec, 2022 – current**

**Senior Process Engineer**

Advisian is a Worley subsidiary that provides consultancy to oil and gas, upstream and midstream industries, green and blue energy production in the Middle East Region focused on concept and feasibility studies and high level cost estimation for Client’s needs. Besides engineering work, I am providing technical support to other projects and concept studies of Worley, acting as lead engineer, mentoring of junior process engineers.

**Ras Markaz Tank Terminal** in Oman. Client: OTTCO

In this project I was acting as Lead Process Engineer to provide estimation of the required tank volumes, pumps capacities and utilities (fire water, flares, boil off gases refrigeration system, diesel generator, etc.) for safe operation of the Terminal. Product range includes Crude, Diesel, Gasoline, and also cryogenic storage for LPG, LNG and Ammonia.

**NGL Fractionation and Product Treatment Plant** in UAE. Client: ADNOC

In this project I was acting as Senior Process Engineer within a team of 4 process engineers. In absence of lead engineer, I was acting as deputy lead. Our team developed Concept for the greenfield NGL fractionation plant with inhouse calculation of fractionation unit in HYSYS (Deethaniser, Depropaniser, Debutaniser, Deheptaniser) and treatment units in ProTreat (amine treatment, physical solvent treatment of regeneration gases) including assessment of required utilities. Hydraulic of a complex NGL network was done by me in TLNet software.

**ILF Consulting Engineers (Abu Dhabi, UAE) Mar, 2018 – Dec, 2022**

**Senior Process Engineer**

ILF Consulting Engineers (UAE subsidiary) is an engineering company that provides consultancy to oil and gas, upstream and midstream industries in the Middle East Region. Besides engineering work, I am providing technical input to proposals, man hour estimation, leading of group of process engineers, mentoring of junior process engineers.

**Gas Gathering and Compression Project in Wafra oilfield** in Kuwait. Client: Wafra Joint Operations (Saudi Arabian Chevron and Kuwait Gulf Oil Company)

In this project I was acting as Lead Process Engineer with a team of 3 process engineers and 3 drafters. The team developed FEED for the gas gathering system of 120 MMscfd capacity by VRUs installed on 15 well sites and processing facilities. Gas is gathered in one location via network of piping across the oilfield (total length approx. 50 km) and supplied to compressors. Compression unit consists of 4 trains of 3-stage reciprocating compressors with total motor power 6 MW followed by TEG Dehydration Unit. Facility includes 2 flares and Incinerator. Hydraulic model in HYSYS was developed and technical solutions for installation of seal drums were proposed by me.

**Concept Study of Reactivation/Expansion of Humpuss Aromatic Refinery** in Indonesia. Client: Liberty Energy Group.

The project was executed in ILF Vienna office (Austria) where I was temporarily assigned to. The 70,000 bpd refinery consists of crude distillation unit, naphtha hydrotreater, reformer, isomerization unit. For a proposed expansion of the existing refinery, I developed a linear regression Aspen PIMS model. This is linear regression model which optimizes refinery configuration based on product’s price and feedstock costs.

**Optimization Study of the Inlet Separators, Amine Unit (MDEA) and Dehydration Unit (TEG)** in Sheberghan Gas Field in Afghanistan. Client: Ministry of Mining and Petroleum of Afghanistan.

During the project I was acting as a Senior Process Engineer and led a team of 2 process engineers. We analyzed the existing facilities, identified bottlenecks and design issues of the units. Upon implementation, gas throughput of the Amine Unit will increase from 0.3 to 1 MMm3/d (e.g. relocation of pressure control point, filtering of amine solution, modification of reboiler control loop). Overall capacity of gas plant will increase to 2 MMm3/d of gas by installation of a new Amine Unit and modification of the existing Dehydration Unit. 38 sensitivity cases were conducted in HYSYS to define maximum capacity of the existing units with proposed modifications. Also, new HC/amine drain system and incinerator of acid gas were proposed. I mentored junior process engineer and guided other process engineers in utility systems design.

**Concept Study of Petrochemical Complex** in Basrah Governorate, Iraq. Client: Ministry of Industry and Minerals of Iraq.

I performed the technology screening of polyethylene and polypropylene units, located downstream of Steam Cracker with production capacity of 1,100 kt/a of ethylene and 650 kt/a of propylene. Performed compilation of the Basis of Design. Responsible for estimation of utilities (air, nitrogen, power, etc.) for the Petrochemical Complex and required storage capacity for every final product.

**Concept Design of Tank Farm for Petrol/Diesel, LPG and Edible Oil with SPM Import/Export Pipelines** in Berbera, Somalia. Client: Dahabshiil Group.

12” SPM pipeline for petrol/diesel along with two 10” pipelines for LPG and edible oil was calculated based on Pipeline Studio TLNet simulation. Steady-state and transient cases were performed to identify design pressure and valves closure time. Tank terminal with three independent sectors (petrol/diesel, LPG and edible oil) total 92,000 m3 with truck loading/unloading facilities was designed to fulfill export requirements of 1,000 m3 per hour of petrol/diesel, 500 m3 per hour for LPG and 700 m3 per hour for edible oil. I utilized HYSYS Hydraulics for simulation of terminal’s piping and transfer / loading pumps. Special care was taken for pipeline and piping heating for edible oil sector to prevent palm oil solidification.

**Feasibility Study for Replacement and Improvement of the Existing Gas Network** in Dhaka City, Bangladesh. Client: Titas Gas Transmission and Distribution Co. Ltd.

Client owns the gas distribution network which was constructed in stages starting 1970s. Gas network supplies districts of Dhaka City and number of power plants around the city. In the project I was responsible for development of overall network SFD, and PFDs of each station inside the network (total more than 50), establishing of Design Basis. Each station consists of pressure reduction streams for each downstream consumer, heating and filtering units, drain system.

**Project Management Consultancy Service for Green Riyadh Project – Water Supply Increase to Riyadh City**, Saudi Arabia.Client: Royal Commission of Riyadh City.

This Mega Project aimed to increase area of green zones of Riyadh City from 2% to 10%. Water transmission system is designed to handle more than 1 mln. m3 per day of water via 300 km primary mains network. Diameter of pipelines is up to 2500 mm. I am acting as PMC hydraulic engineer to check simulation models of three contractors and provide improvement ideas. In-house simulation model in Excel and in WaterGems software was developed to understand bottlenecks of the system. Complexity of the project is raised due to partial existence of the network and some part is under ongoing construction.

**FEED of Gas Sweetening Unit Solvent Swap Project** in Shah Plant in UAE. Client: ADNOC Sour Gas.

I performed adequacy checks of a Sweetening Unit (absorber, regenerator, air coolers, reboilers, pumps, pipe sizes) was undertaken for new solvent flow rate and properties. Successful interaction with a Vendors of plate heat-exchangers and column trays was a key component of the project.

**Feasibility Study for the Sales Gas and NGL Networks of UAE**. Client: ADNOC Gas Processing.

Research study was done for the new possible operating regimes and manifold bypass options of the UAE gas network (total 500 km from Habshan to Ruwais and Fujairah) and NGL network (total 200 km from Asab to Ruwais), including validation of the SPS simulation model with existing pump/compressor curves. Piping cracking by jet fire was calculated to identify time for depressurization and several flare options were analyzed for the depressurization of 4 manifolds. Weighted average approach based on CAPEX, operation and safety issues was chosen to select the best option for future operation. For this project, I developed the gas network map linked to the SPS software result sheet for better presentation of the study outcome.

**Hydraulic Analysis for 48” MP-21 to MOT Pipeline** in UAE. Client: ADNOC Onshore.

I was responsible for steady state and transient analysis of the 48” crude oil pipeline 400 km long with 3 pump stations (total 69 scenarios, including scenarios with Drag Reducing Agent (DRA) and transient analysis of 48” subsea ship loading pipelines 9 km long (total 12 scenarios). Adequacy check of the existing surge relief systems at pumping stations and surge vessel at mooring buoy was done. Based on study, new set points for Pressure Reduction Valve were identified to avoid vacuum conditions at the top of the mountain upstream of the ship loading terminal.

**FEED of Central Processing Facility** located at Garmian Oil Field in Kurdistan Region of Iraq. Client: Gazprom.

Performed adequacy check of inlet separators and inlet manifold. During the project I developed internal Excel spreadsheet for a different weir location inside a 3-phase separator.

**Detailed Design of Sarqala-3 and Sarqala-4 Well Sites and 8” Flow Lines** in Garmian oil field in Kurdistan Region of Iraq. Client: Gazprom.

Hydraulic analysis of 8” flow lines gathering network was done using HYSYS Hydraulic tools. Depressurization of a high-pressure sand filter (400 barg) was performed in HYSYS Dynamics for options with series orifice plates and different % opening of choke valve.

**Project Management Consultancy Service for 16” 80 km Crude Oil Pipeline** in Yemen. Client: Yemeni Government.

Acting as Senior Process Engineer, I was in charge for checking of design documentation of China Petroleum Engineering (Contractor of Yemeni Government for this crude pipeline project) and participation in HAZOP/HAZID. In this project I identified several options for temporal operation with orifice plates before arrival of PCVs to this remote location in Yemen.

**FEED of Gas Pressure Reduction Unit and Filter Unit** in Kurdistan Region of Iraq. Client: Crescent.

Hydraulic revalidation of the existing 24” 200 km pipeline, development of P&IDs, development of P&IDs, control valves sizing.

**Participation in 13-Weeks HAZOP Session of Khor Mor Gas Plant** in Kurdistan Region of Iraq. Client: Crescent.

I provided process input to this long HAZOP session of the whole Khor Mor Gas Plant on site with intensive involvement of the operation team. The session itself I consider as a very valuable experience for understanding of gas plant operation issues. Main facilities of the Plant are: wellheads, inlet separation unit, amine unit, cryogenic unit (combined JT and expander method), crude oil stabilization unit, deethanizer and debutanizer columns, LPG and NGL storage, gas export compressors and gas export pipeline.

**Framework Contract for Upgrade of 36” 250 km Crude Oil Pipeline** in Kurdistan Region of Iraq. Client: Rosneft.

Initiator of the pipeline and pump station enhancement was Rosneft who became a major shareholder of the Kurdistan crude oil export system. This project was a 2-years of engineering research for enhancement of the poor-maintained facilities. Starting as process engineer, I became a key person by the end of the project, as I was the only process engineer who had been involved into all process activities for 2 years. I guided engineering contractor with development of as-built P&IDs and PFDs. We did conceptual engineering and budget estimation of new pipeline facilities (pump stations, tanks, drain vessels) which are required for enhancement. Our team performed hydraulic analysis of the pipeline and trained Rosneft personnel to use the software. I proposed modifications of pumping station to reduce power consumption by 5% by optimizing operation of 8 pumps in parallel and completely avoid waste of crude oil by installation of closed drain system.

**Feasibility Study and FEED of the New 60” Bypass Line for Production Water in Desalination Plant** in Saudi Arabia. Client: JWAP.

For this project I performed steady-state and transient analysis of the new bypass line for different pipe sizes (up to 64”), different flow control configuration (from 1 FCV to 6 FCVs in parallel), different materials (PE and cement lined CS), and different routes (1 to 3 km). Best option was identified based on CAPEX and ease of operation.

**Wood Group (Tengiz, Kazakhstan) Feb, 2018 – Mar, 2018**

**Senior Process Engineer**

Wood group is a major EPC company, well-known in Oil&Gas Industry. Due to short stay, I was involved only in one project:

**Replacement of Flare Header.** Project was to replace existing CS Flare Header with a new material CS with SS overlay. In this project I was in charge of hydraulic calculation of the new Flare Header and supported other disciplines with material selection.

**Ruspetro (Moscow, Russia) Apr, 2017 – Oct, 2017**

**Senior Process Engineer**

Ruspetro is an oil and gas production company with its own license areas in Western Siberia. My main responsibilities were to identify optimum and cost-effective solutions for several projects:

**Delivery of Crude Oil to CPF.** In this project I identified what wells out of 20 shall be connected with permanent flow line. For the rest of the wells it was identified that economically it’s more efficient to deliver crude oil by tracks. Hydraulic analysis of oil and gas pipelines for different scenarios was done by me to support the selection.

**Modular System for Well Development**. For the remote wells with track loading, modular solution by optimizing of skids with test separator and degassing vessel was developed. 3D model was developed internally by trainee who was mentored by me.

**Hydraulic Fracturing Project**. Hydraulic fracturing requires 4500 m3 of water to be supplied in 7 days to remote location. In this project I develop system of water supply for hydraulic fracturing by means of coupling-connected pipes and mobile firefighting water pumps. Two tanks 900 m3 made of PE were concluded for design.

**Sales Gas Pipeline**. This project required technical check of Contractor’s design documentation (simulation reports, datasheets, equipment sizing and strength calculations) and supplied static equipment documentation for correct implementation of standards. Being trained as mechanical engineer by ASME, I acted as process and mechanical lead engineer for this project.

**FLUOR (Houston, USA) Aug, 2015 – Oct, 2016**

**Process Engineer**

FLUOR is an EPC company with wide range of oil & gas projects worldwide. I was involved in four projects:

**Detailed Design of Heavy Resid and Gasoil Re-routing Project** in Galveston Bay Refinery, Texas, USA, Client: Marathon.

This project was initiated by unification of tank farms of two refineries. I was responsible for network hydraulics calculations of the heavy resid lines and gasoil inside tank farm using AFT Fathom software and P&ID modification for revamp units of the refinery. I finished hydraulic calculation with accurate assumptions before Client provided data to us, and that resulted in saving of 2 weeks for the project.

**FEED of Butadiene Unit with NMP Extraction and Distillation, and 20 km Export Pipeline** in Al Jubail, Saudi Arabia, Client: SABIC.

In this project I did hydraulic calculation of the export pumps and 20 km pipeline (operating at minus 20°C) using AFT Fathom software. As a result of excellent simulation of export pump hydraulics by Fathom, I was moved to Galveston Bay Refinery Project to finish net hydraulics. Besides that my responsibilities were: PSV calculations, simulate steam system, preparation of datasheets, flare purge gas estimation, perform flare calculation using Flare.Net, development of emission summary, our team man-hours tracking.

**Sakh-1 Gas Field Development Project,** Sakhalin Island, Russia, Client: Exxon.

The project was to provide feasibility study for the Sakh-1 Gas development and associated facilities (new wells, gas separation and compression) at CPF to feed the proposed Far East LNG facility.

Responsibilities: provide hydrate formation study, line and separators sizing, perform flare calculation by Flare.Net, calculation of material balance for several scenarios and creation of BFD for every scenario, PSV calculations. Hydrate formation study performed by me, revealed unreasonable cost increase for one of the five base scenarios.

**Odoptu Gas Field Development. Stage 2,** Sakhalin Island, Russia, Client: Exxon.

This project was a detailed design of modular expansion of the Odoptu onshore production facilities by treatment facility and export compressor/pumps upstream of the proposed Far East LNG plant.

Main goal for me in this project was to be trained and understand FLUOR procedures – both management and technical. Responsibilities include: PSV calculations, checking of separators sizes and line sizes, P&ID correction. Creation of personal skill matrix during this project helped me in cooperation with management to choose the best project for me upon completion of my training.

**Engineering Center Technohim (St. Petersburg, Russia) Oct, 2010 – Jul, 2015**

**Process Engineer / Static Equipment Mechanical Engineer**

Engineering center Technohim is an EPC company provides solutions for oil and gas industry in Eastern Europe. I had executed many projects for 5 years in Technohim with various responsibilities. During that time I was a member of ASME and was trained for pressure vessel design according to ASME BPVC Section VIII Division 1 and 2. My main achievement in Technohim was training of the personnel to ASME Design Codes and development of process department. Process department was established in Technohim in 2011 and I was acting as Senior Process Engineer the same time supporting Mechanical Department as Static Equipment Mechanical Engineer.

My responsibilities included:

* Process calculations of oil distillation, petrochemical and gas equipment (atmospheric and vacuum distillation columns, separators, heat-exchangers, contactors, fixed bed reactors and adsorbers, gas treatment plants, vacuum systems, pump systems, oil and gas quantity and quality measuring units, filtration and separation systems, gas drying by glycols or zeolite adsorption) by MS Excel, Aspen HYSYS and Aspen EDR;
* Conceptual and detailed design for gas and oil refining processes mentioned above, development of BFDs, PFDs and P&IDs;
* Development of mass and heat balances, heat transfer and phase transition calculations;
* Hydraulic calculations of lines and pumps, 3D equipment arrangement by process requirements;
* Data sheets for dynamic and static equipment, instruments, control valves, flow meters for Client and Vendors and as process data for other departments of the company;
* Project documentation approval with Client, State Organizations;
* Pressure vessel design and strength calculations in accordance with ASME BPVC Section VIII Division 1 and 2;
* Piping and supports stress analysis;
* Material selection for pressure vessels and piping in accordance with ASME BPVC Section II;
* Coordination with process, mechanical, piping, electrical, instrumentation departments, giving tasks for other departments and supervision of work performance, interface with Clients;

Project examples:

* **DEG Dehydration Unit**, Russia, Client: Tatneft. FEED stage. Includes HYSYS simulation for the whole system: contactor, regeneration and stripping columns;
* **Vacuum System for Sulfolane Extraction Unit**, Russia, Client: Tatneft. Detailed engineering;
* **Flexicoking Unit Budget Estimation**, Tuapse, Russia, Client: Rosneft. Budget calculation for engineering and procurement;
* **Gas Dehydration Unit by Zeolite**, Russia, Client: Tatneft. FEED. Process design of the system in HYSYS, development of P&IDs, evaluation of zeolite adsorber size;
* **Water Condensate Heating System**, Russia, Client: LUKOIL. Detailed engineering. Process design;
* **Design and Procurement of 6 Shell-and-Tube Heat-Exchangers (Helixchangers)** for Perm Refinery, Russia, Client: LUKOIL. Detailed design. Mechanical design and strength calculations of pressure vessels;
* **Design and Procurement of 13 columns for Angarsk Refinery**, Russia, Client: Rosneft. Detailed design. Mechanical design and strength calculations of pressure vessels.

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| **RELEVANT COURSES** |

* Synergi Pipeline Simulator Training Abu Dhabi, UAE Jul 2022
* AspenTech Courses – Aspen PIMS Certification (3 years) Vienna, Austria Sep 2021
* Aspen HYSYS Certification (3-years) – HYSYS Expert User Abu Dhabi, UAE Jan 2021
* Aspen HYSYS Certification (3-years) – HYSYS Certified User Abu Dhabi, UAE May 2020
* AspenTech Courses - Aspen HYSYS Advanced Process Modeling St. Petersburg, Russia May 2014
* Moscow State University of Oil and Gas named after Gubkin

Professional Courses - Main streams of development of gas

treatment on gas plants in Russia and worldwideMoscow, Russia Apr 2013

* Gas processing in HYSYS St. Petersburg, Russia Nov 2012
* ASME Public Courses - ASME BPVC Section VIII Division II Amsterdam, the Netherlands Mar 2012
* ASME Public Courses - ASME BPVC Section VIII Division I Prague, Czech Republic Dec 2011
* Strength calculations of piping systems by START software Moscow, Russia Dec 2011
* Gas filtration and gas equipment St. Petersburg, Russia Oct 2011

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| **SOFTWARE SKILLS** |

**Aspen HYSYS** and **Honeywell UNISIM** – process simulations,

**ProTreat** – process simulation of sulphur treatment units (chemical and physical solvents)

**Flare.Net** – PSV relief and flare system calculation,

**Aspen EDR** – heat-exchanger calculations,

**HTRI** –heat-exchanger calculations,

**Aspen PIMS** – linear programming tool for optimum refinery configuration,

**Synergi Pipeline Simulator (SPS, Stoner)** – steady-state and transient analysis of liquid and gas systems,

**Pipeline Studio TLNet and TGNet** – steady-state and transient hydraulic analysis of liquid and gas systems,

**PipeSim** – steady-state and transient hydraulic analysis of water and oil systems,

**AFT Fathom** – net steady-state hydraulics of oil systems,

**WaterGems** – GIS-based steady-state and transient software for water,

**EPANET** – water hydraulic steady-state software (WaterGEMS compatible),

**MS Excel** – spreadsheet process and strength calculations,

**PASSAT** – pressure vessel strength calculation and finite element analysis tool,

**START** – piping stress analysis,

**MS Visio** – BFD development,

**AutoCAD** – 3D modeling and P&ID/PFD development,

**Compass** – 3D modeling of equipment.