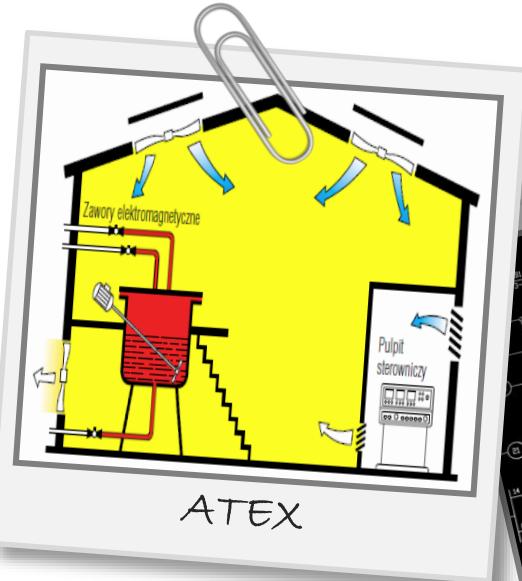


We provide services in the following areas:



ATEX



Process safety



High risk plants



Audits

Process Safety Manager



Work Experience

2011 – present: BHP Consulting, Process Safety Manager
2006 – 2011: Technical University of Lodz, Occupational Safety Engineering Department, Faculty of Process and Environmental Engineering

Major Project

- ORLEN Oil Sp. z o.o.
- PGNiG Termika
- ORLEN Asphalt Sp z o. o.
- OLPP S.A. Refinery storage-dispatch terminals
- PCC Exol S.A. Ethoxylates plant
- UTC Aerospace Systems
- PPG Deco Polska
- Mota – Engil
- Glassworks „VIOLETTA”
- GDF Suez
- Bodycote
- LNG storage-dispatch terminal in Pisz
- LPG storage-dispatch terminal in Narewka
- Purinova Production of polyester polyols and polyurethane foam systems
- KONSBUD Glued Laminated Timber
- DALKIA Heat and Power Plant in Lodz
- Reckitt Benckiser Production (Poland) Sp. z o. o.
- MarkGaz LPG storage-dispatch terminal in Gostynin
- Evonik Carbon Black Poland Sp. z o. o. Catalytic combustion of oil vapors installation
- ORLEN Refinery storage-dispatch terminals
- Fuji Seal Industrial Plant in Kutno
- PCC Rokita (study) Chlorine discharge installation
- ANWIL (study) Ammonia evaporation installation in Anwil Chemical Plant

Education

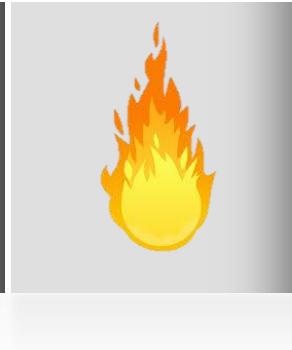
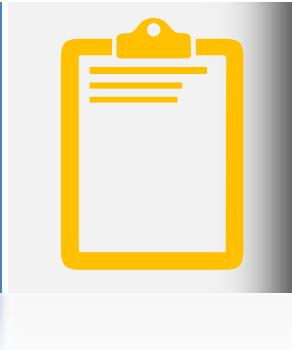
2006 – 2011: Technical University of Lodz, Department of Process and Environmental Engineering, PhD studies: 'Chemical Engineering in Environmental Protection'

2006 – 2007: TU of Lodz, Department of Process and Environmental Engineering, Postgraduate studies: 'Industrial Process Safety'

2001 – 2006: TU of Lodz, Department of Process and Environmental Engineering, Faculty of Environmental Engineering, Specialization: Integrated safety and environmental management

09.2005 – 01.2006: Aalborg University, Denmark, Socrates/Erasmus students' exchange programme, Department of Development and Planning, Faculty of Environmental Management

Our Team



HSE

Process

ATEX

Auditors

Fire

MINING

45 employees.
Every employee
is entitled H&S
Officer.

Six process safety
specialists.

Two explosion
hazard specialists
(ATEX).

Five employees
has the authority
of the lead auditor
- standard OHSAS
18001.
International
Register of
Certificated
Auditors (IRCA).

Eight specialists
in fire protection.

Two employees
of the mining
supervision.

11

years of experience....

REFERENCE LIST

SEVESO – PROCESS SAFETY – ATEX 137



SIEMENS

SIEMENS- PKN ORLEN S.A.- PROCESS SAFETY

Zakres naszej obsługi:
HAZOP analysis report





CIECH Sarzyna S.A. – Proces Safety SEVESO III

The scope of our service includes:

- Development of Safety Report
- HAZOP analysis report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan





GAS TRADING- Process Safety

The scope of our service includes:

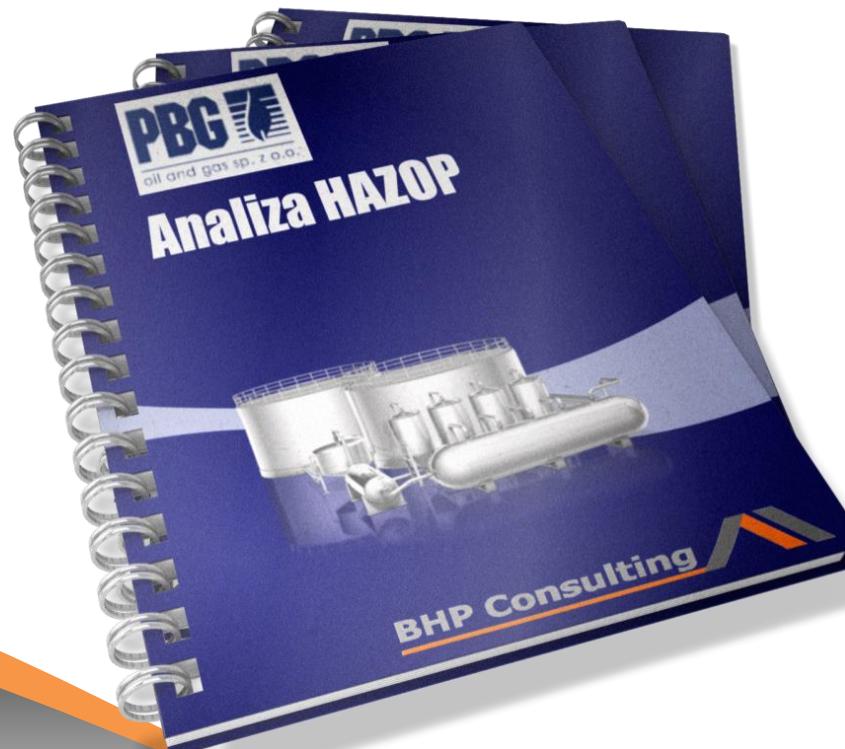
- Development of Safety Report
- HAZOP analysis report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan
- Explosion Prevention Document (**ATEX**)
-



PBG OIL & GASS –Process Safety

Zakres naszej obsługi:

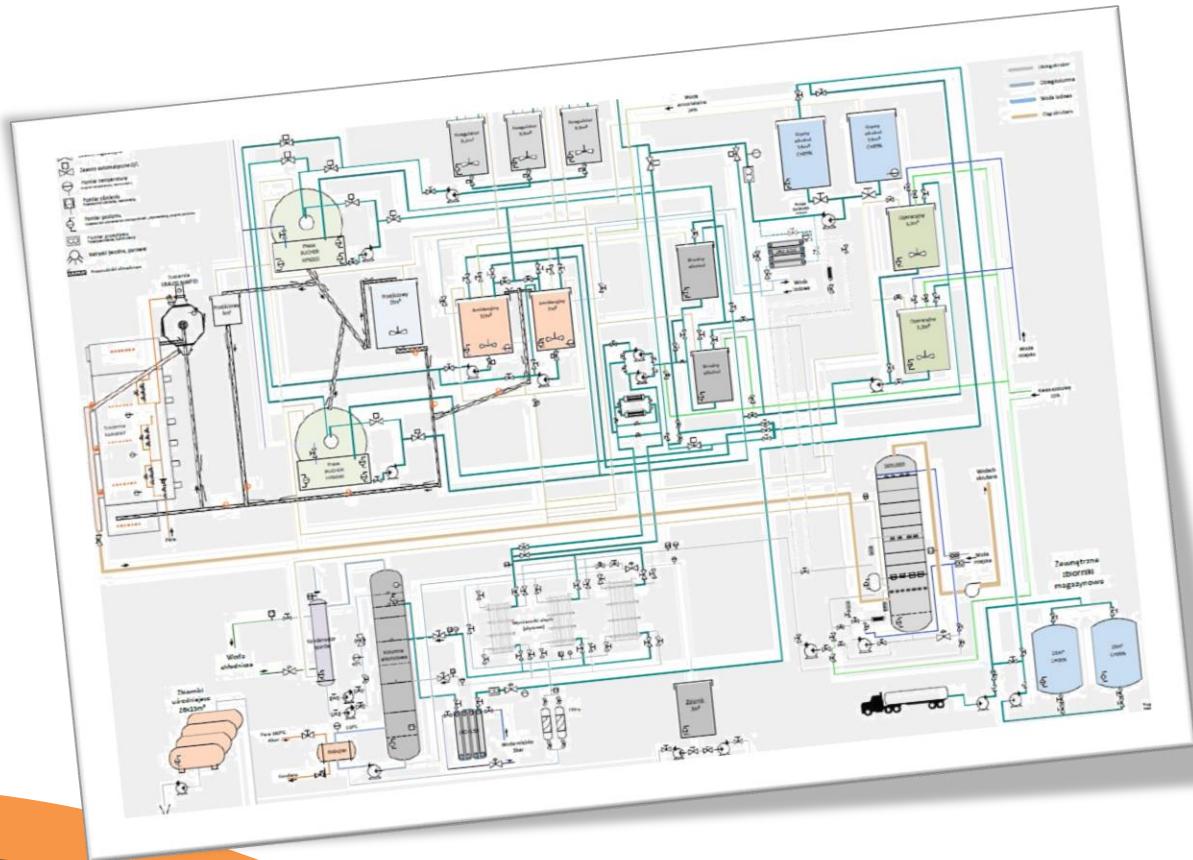
- HAZOP analysis report „Zagospodarowanie złoża Radoszyn”



SUPPORTED COMPANIES



HAZOP analysis report on ethyl alcohol in PEKTOWIN Jasło



SUPPORTED COMPANIES

Process safety/ SEVESO / ATEX



The scope of our service includes:

- Development of Safety Report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan
- Explosion Prevention Document



SUPPORTED COMPANIES



Process safety/ SEVESO / ATEX

The scope of our service includes:

- Development of Safety Report
- HAZOP analysis report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan
- Explosion Prevention Document





UTC Aerospace Systems

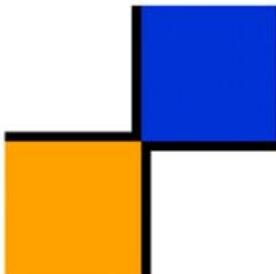
Process safety/ SEVESO / ATEX

The scope of our service includes:

- Development of Safety Report
- HAZOP analysis report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan
- Explosion Prevention Document (**ATEX**)



SUPPORTED COMPANIES



MOTA ENGIL –ATEX 137

The scope of our service includes:

- Explosion Prevention Document (**ATEX**)

MOTAENGIL



SUPPORTED COMPANIES



Glassworks „VIOLETTA“- Process safety/ SEVESO

The scope of our service includes:

- Development of Safety Report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan
- Explosion Prevention Document (**ATEX**)



SUPPORTED COMPANIES

GDF SUEZ

Power Plant „POŁANIEC”- Process safety/ SEVESO

The scope of our service includes:

- Development of Safety Report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan



SUPPORTED COMPANIES



Process safety/ SEVESO

The scope of our service includes:

- Development of Safety Report
- HAZOP analysis report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan
- Explosion Prevention Document (**ATEX**)





Fuel storage base– Rejowiec Poznański- Process safety/ SEVESO

The scope of our service includes:

- Development of Safety Report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan
- Explosion Prevention Document (**ATEX**)



SUPPORTED COMPANIES



Ethoxylates plant in Płock - Process safety

The scope of our service includes:

- Development of Safety Report
- HAZOP analysis report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan



SUPPORTED COMPANIES

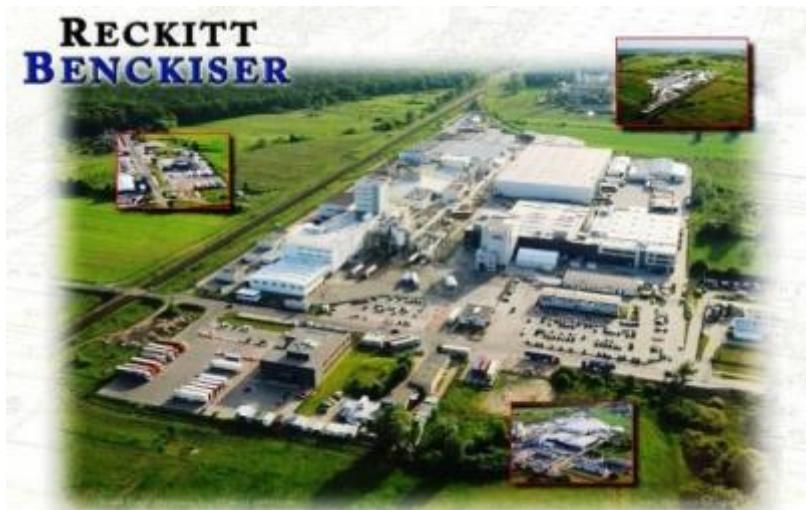


Production plant in Nowy Dwór Mazowiecki

- Process Safety

The scope of our service includes:

- Development of Safety Report
- Development of Major Accidents Prevention Program
- Development of the Internal Emergency Plan
- Explosion Prevention Document

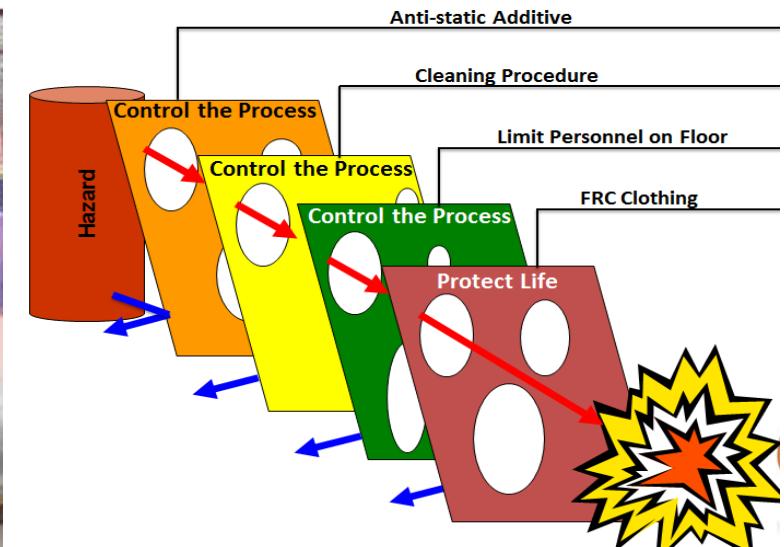


SUPPORTED COMPANIES



ATEX

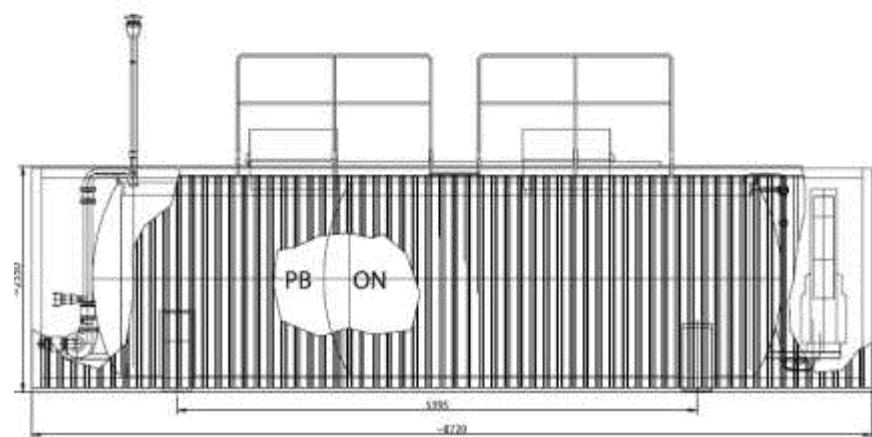
Incident investigation Explosion in a stationary disperser tank at the PPG facility in Lewkowiec, Poland



SUPPORTED COMPANIES



Explosion Prevention Document



Process Safety – SEVESO DIRECTIVE



- High Risk Plants
- Medium Risk Plants

Medium Risk Plants (pl. ZZR)

Required documentation

Reporting to state administration

ZZR

Policy to prevent major accidents

ZZR

Lp.	Nazwa substancji	Charakterystyka	Nr CAS	Klasifikacja (REACH)	Klasifikacja (GHS)	Ilość [Mg]	Ilość substancji niebezpiecznej do której daje o zaliczeniu do zakładu o zwiększonym ryzyku [Mg]	Odniesienie do Rozporządzenia
11	Kwas solny techniczny 33% (odśarczanie)	-	7647-01-0	C, R34, Xi, R37	Skin Corr. 1B, H314, Eye Dam. 1, H318, STOT SE 3, H335, Met. Corr. 1, H290	2,910	-	-
12	Kwas solny techniczny 34% (neutralizator)	-	7647-01-0	C, R34, Xi, R37	Skin Corr. 1B, H314, Eye Dam. 1, H318, STOT SE 3, H335, Met. Corr. 1, H290	2,910	-	-
13	Kwas solny techniczny 36% (demineralizator)	-	7647-01-0	C, R34, Xi, R37	Skin Corr. 1B, H314, Eye Dam. 1, H318, STOT SE 3, H335, Met. Corr. 1, H290	104,96	-	-
14	Olej opałowy ciepł C-3	olej opałowy ciepł C-3	68476-33-5	T. Rakow Kat. 2, R45, Xn R20-53, 40/21, Xi, R66, N, R50/53	Carc. 1B H350, Acute Tox. 1A H332, Sens. 1A, Exp. 2, H373, Repr. 2, H361, EUH061 Aquatic Chronic 1 H410	3,980	100	200
15	Podchlorynsodu	-	7681-62-9	C, R31-34	Skin Corr. 1B, H314, STOT SE 3, H335, Met. Corr. 1, H290, Aquatic Acute 1, H400	6,260	-	-
16	Propan	-	74-98-6	F+, R12	-	1,966	50	200
17	Siarczan zelazowy preparat ciekły, niepalny	Prz. 12, 115, 122, 123	10028-22-5	Xn, R22, R36/37/38	-	14,87	-	-
18	Tlen techniczny (butyl)	-	7782-44-7	O, R8	Ox. Gas. 1, H270, Press. Gas. >200	1,590	200	2000
19	Tlen techniczny (zbiornik pośredni)	-	7782-44-7	O, R8	Ox. Gas. 1, H270, Press. Gas. >200	0,106	200	2000

High Risk Plants (pl. ZDR)

Required documentation

Reporting to state administration

ZDR

Policy to prevent major accidents

ZDR

Safety Report

ZDR

Internal emergency plan

ZDR

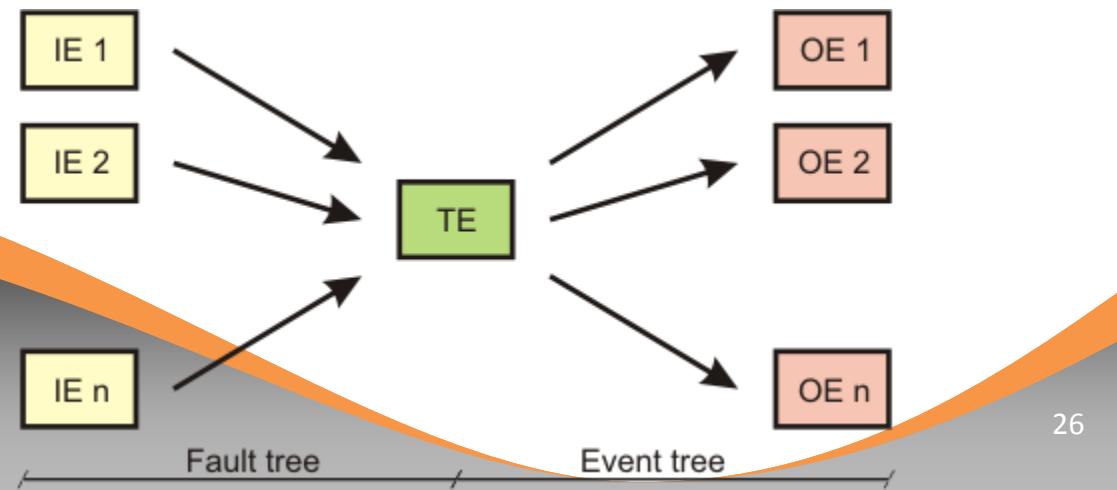
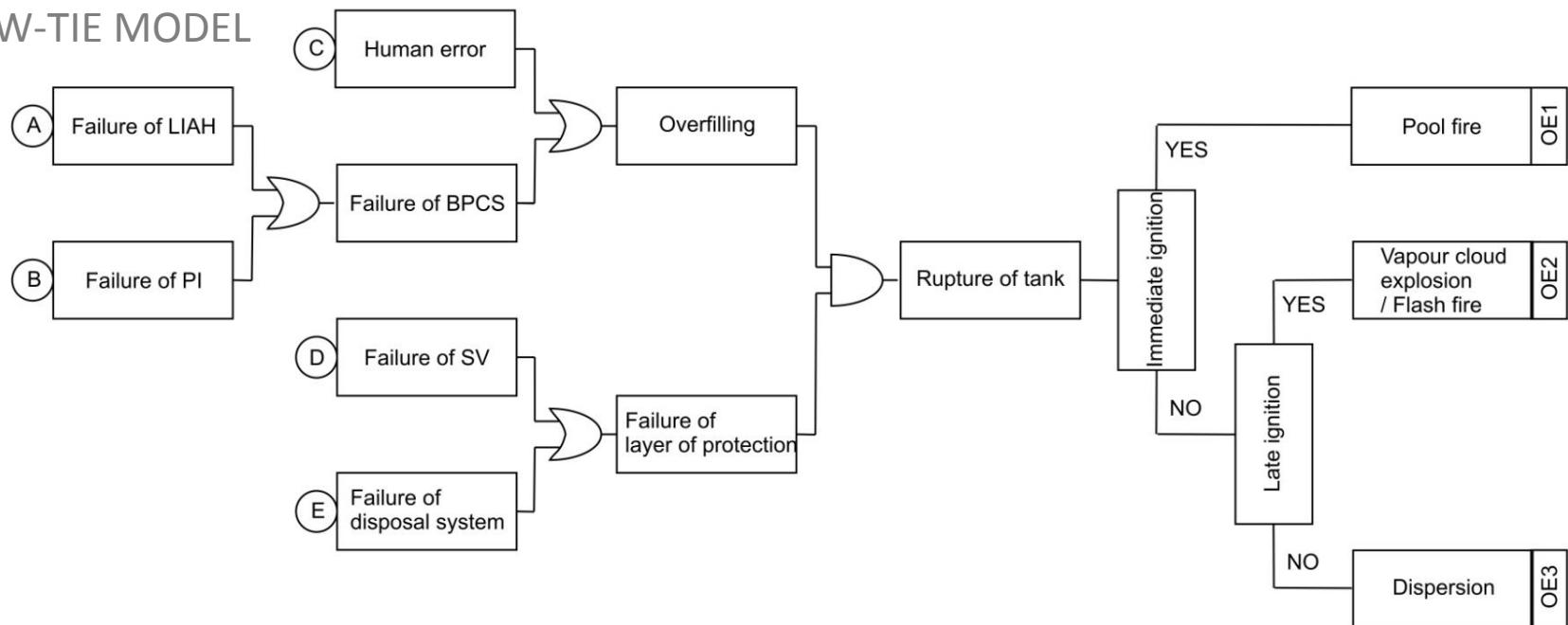
Process safety analysis / Audit

- PRELIMINARY HAZARD ANALYSIS
- HAZOP
- CHECK LIST

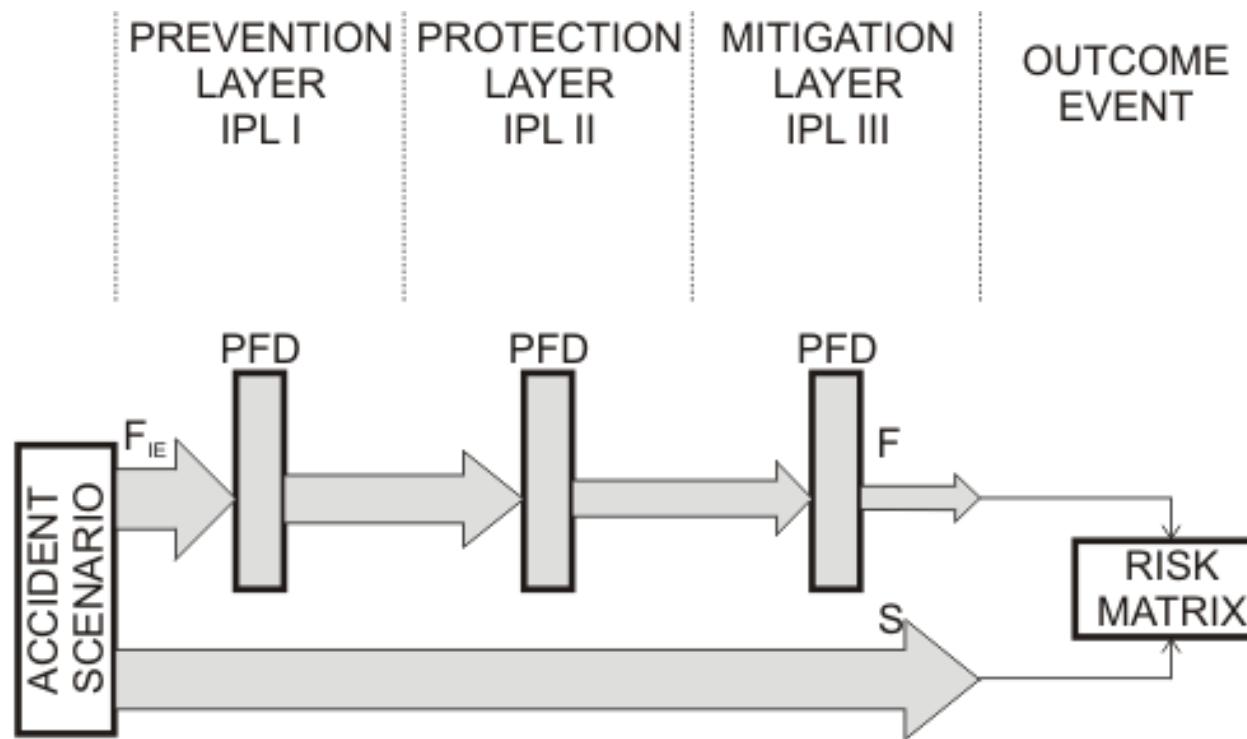
L.p.	Słowo przewodnie	Parametr	Przyczyna	Skutki	Zabezpieczenia	Ryzyko			Dodatkowe zabezpieczenia	Odpowiedzialny
						P	S	R		
1	Brak	Przepływ gazu opałowego do pieca (FR-3)	Zanik gazu w sieci	Wyłączenie pieca KS-1. Zatrzymanie utleniania. Skierowanie gazów oksydacyjnych na komin. Zatrzymanie węzła kotłowego.	Instrukcja stanowiskowa. Procedura awaryjna.	7	8	9	10	11
2			Odcięcie - otwarcie zaworu blokowego PV-222 (pnneumatyczny) - automatyczne	Wyłączenie pieca KS-1. Zatrzymanie utleniania. Skierowanie gazów oksydacyjnych na komin. Zatrzymanie węzła kotłowego.	Sygnalizacja alarmowa. Krańcówki. Instrukcja stanowiskowa. Procedura awaryjna.	2	2	A	Nie są wymagane	-
3			Awaria zaworu PV-222 - brak powietrza	Wyłączenie pieca KS-1. Zatrzymanie utleniania. Skierowanie gazów oksydacyjnych na komin. Zatrzymanie węzła kotłowego.		3	2	A	Nie są wymagane	-
4		Przepływ powietrza do spalania (FR-222)	Awaria (wyłączenie) wentylatora W-1	Wyłączenie pieca KS-1. Zatrzymanie utleniania. Skierowanie gazów poksydacyjnych na komin. Zatrzymanie węzła kotłowego.	Sygnalizacja w układzie blokad (sterownik blokad pieca KS-1) na sterowni. Instrukcja stanowiskowa. Procedura awaryjna.	2	2	A	Nie są wymagane	-
5			Zamknięcie żaluzji przez pracownika (błąd operatora)	Przygaśnięcie płomienia w piecu. Wykrycie przez fotokomórki. Wyłączenie pieca KS-1.		3	2	A	Nie są wymagane	-

Accident scenario

- FAULT TREE
- EVENT TREE
- BOW-TIE MODEL



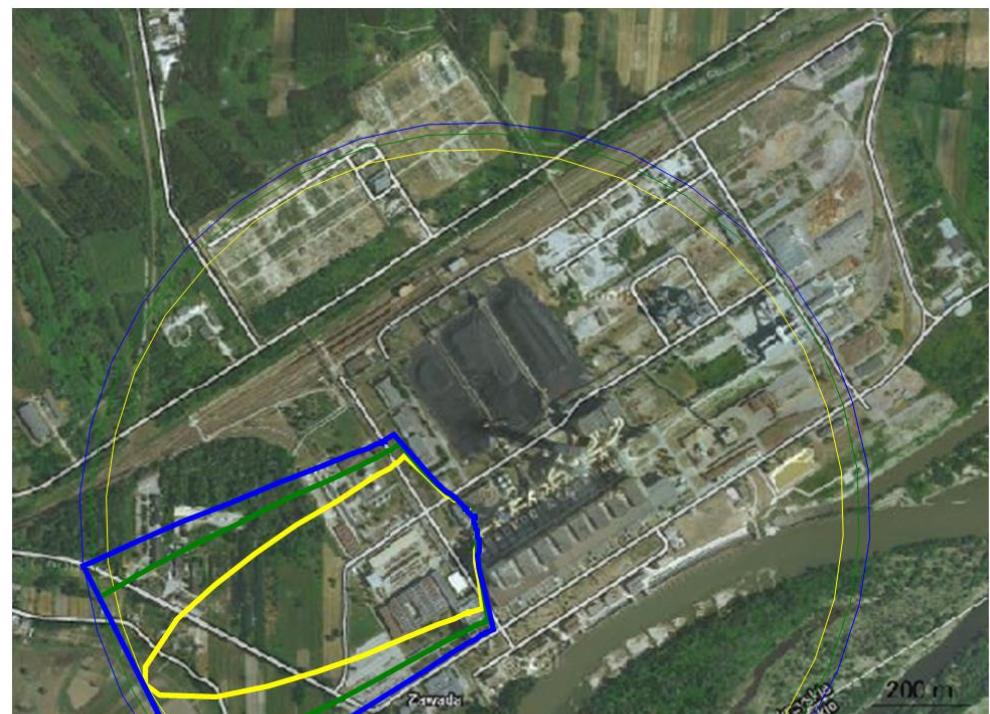
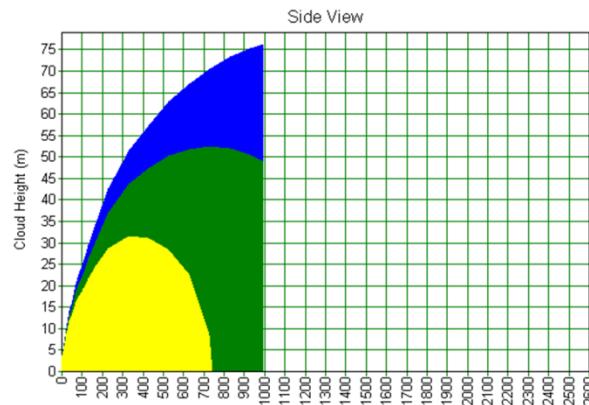
Layer of protection analysis



Consequences analysis

- RELEASE
- PHYSICAL EFFECTS
- CONSEQUENCES TO:
 - HEALTH,
 - ENVIRONMENT,
 - PROPERTY,
 - REPUTATION

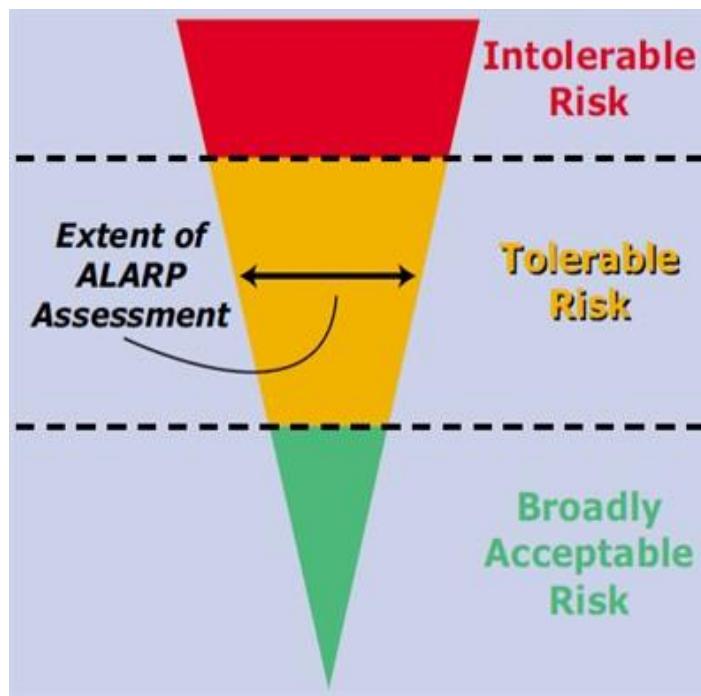
Warunki pogodowe A



Zasięg chmury o stężeniu ERPG 2 – kolor niebieski, TCL0 – kolor zielony, ERPG 3 – kolor żółty w 244 sekundzie od rozpoczęcia wypływu (cienna linia – zasięg dla założonego kierunku wiatru, gruba linia – zasięg strefy, wewnętrznej której będzie występować chmura przy innych kierunkach wiatru)

Risk assessment

RISK ACCEPTANCE CRITERIA (ALARP)

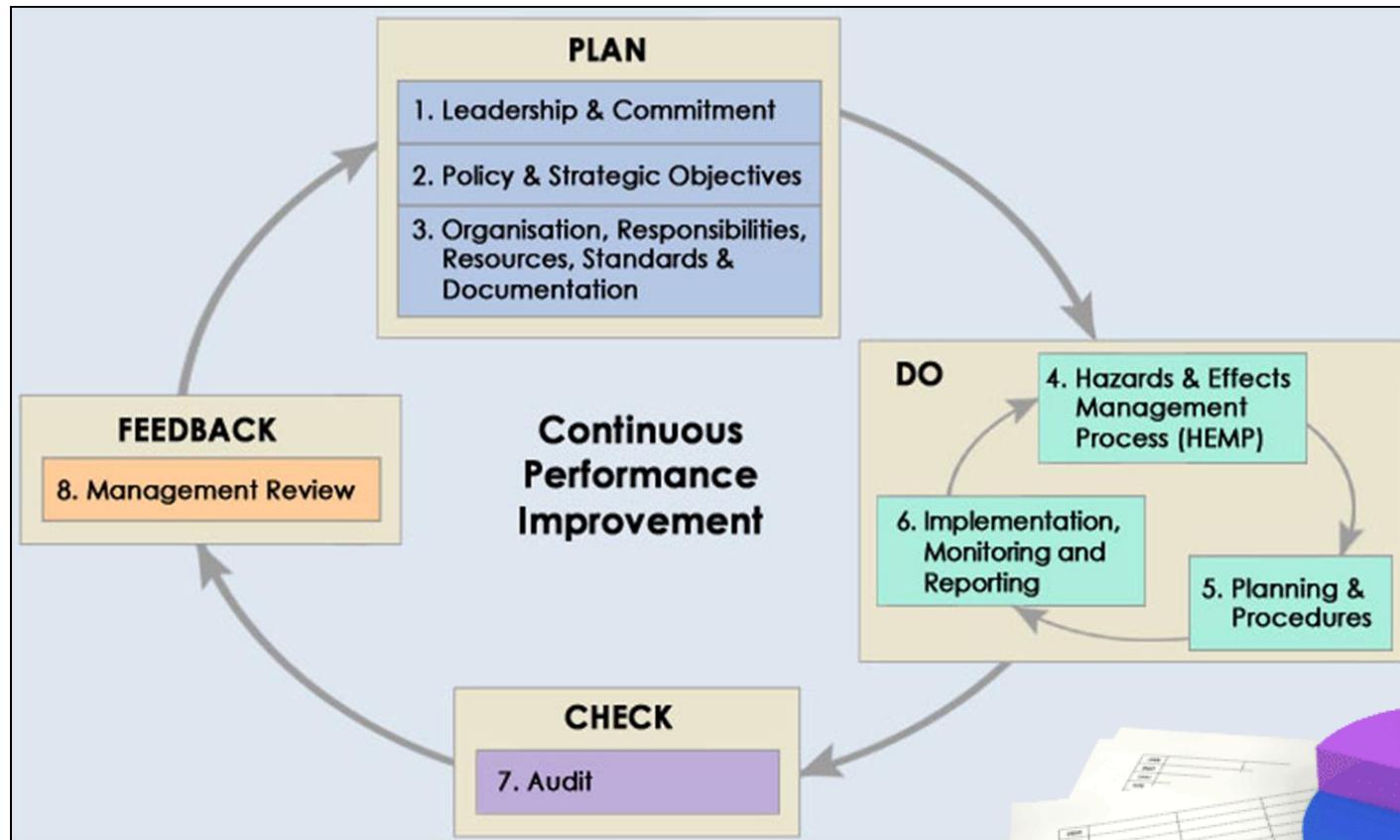


RISK MATRIX

SEVERITY OF CONSEQUENCES

		1	2	3	4	5	
		↓	↓	↓	↓	↓	
P R O B A B I L I T Y	1	1	2	3	4	5	Low Risk
	2	2	4	6	8	10	
	3	3	6	9	12	15	Medium Risk
	4	4	8	12	16	20	
	5	5	10	15	20	25	High Risk

Safety System



welcome to cooperation

