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Agenda Integrated permits for oil refineries: training mission 1 Act. 4.2.d.1

 26^{th} of February -1^{st} of March 2012

MS Experts: Marta Tejedor, Luis Suárez (Spain)

Objectives:

- Present and explain the training programme.
- Discuss the reference materials (draft By-Law, generic guides, sector guide, BREFs).
- Visit Izmit Refinery and define together the data for mission 2 that the installation will have to collect and provide, and which one not.
- Present & discuss the key parts of the document describing the permit application contents.
- Establish targets & contents of training mission 2.
- Start preparing the materials for mission 2.

<u>AGENDA</u>

Tuesday 26th of February

- 10:00 12:30 Presentations on the training programme and the material which will be the basis for the training:
 - o César Seoánez (RTA): training programme, motivation of training
 - Saziye Savas (IEP Division):
 - Relevant legislation in the new permitting system
 - Draft By-Law
 - César Seoánez (RTA):
 - Reference materials and how to use them.
 - Implementation of IPPC in Spain, example of consequences for a textile installation.
- 12:30 13:30 Lunch break
- 13:30 17:00: Marta Tejedor and Luis Suárez (experts delivering the training):





- Presentation of the team of Spanish experts delivering the training course.
- Main characteristics of the new permitting system. New features with respect to existing system.
- Use of relevant documents when applying, and when assessing the application: examples.
- Common problems & doubts during permit application preparation & assessment.

Wednesday 27th of February

- 09:30 10:30 Presentation of the representative of Izmit Refinery, describing the installation.
- 10:30 12:30 Visit to the installation, focussed on its environmental performance.
- 12:30 13:30 Lunch break
- 13:30 17:00 Marta Tejedor and Luis Suárez:
 - Discussion: First impressions on the environmental performance of Izmit Refinery.
 - Preparation of training missions 2 & 3 based on the case of Izmit Refinery: info needed, and topics of interest for the participants.

Thursday 28th of February

- 09:45 11:45 Marta Tejedor and Luis Suárez: Presentation and discussion of the key parts of the document describing the permit application contents.
- 11:45 12:00 César Seoánez: Summary of this first mission, and key data of training mission 2.
- 12:00 13:00 Lunch break.
- 13:00 19:00 Trip back to Ankara.

Friday 1st of March

- Morning:
 - 09:30 13:00 Fix targets and detailed contents for the next mission. Work to prepare the next training session materials using the conclusions and info collected of the previous days.
- Afternoon:
 - 14:30 16:00 Continuation of the work to prepare the next training session materials using the conclusions and info collected of the previous days.
 - 16:00 18:00 Preparation of the mission's report.

SECTOR TRAINING PROGRAMME

General considerations:

The calendar which has been agreed for the missions (training sessions) is the following one:

4.2.d.1 Training sector 2 (refineries)	26/02/2013	01/03/2013
4.2.d.2 Training sector 2 (refineries)	06/05/2013	09/05/2013
4.2.d.3 Training sector 2 (refineries)	17/06/2013	20/06/2013

Topics of interest pointed out by the Turkish experts:

- Presentation of the Integrated Environmental Permits (IEP) By-law, permitting procedure and basic materials.
- One of the objectives should be to provide good advice on how to prepare a good permit application for the given sector. Detailed and extensive discussion about how should be the content of each of the documents of the application file.
- Focus should be thinking specially in the case of existing installations.
- How to take into account also the horizontal BREFs in the assessment, and during the global assessment phase of the permit.
- How to make the global assessment of the media-based reports on emissions, and other reports from other Competent Authorities, in order to prepare the first draft of the IEP.

Methodology:

- The training sessions of mission 1 of each of the sectors will be held at the place where the facility is located.
- The training sessions of missions 2 and 3 of each of the sectors will be held in a Hotel in Ankara.

The Spanish experts will use for the training sessions the specific data of the pilot installation and some examples about issues they consider important to remark based on their experience, proposing in each of the training sessions several exercises to the participants related to the solution of those issues.

MISSION 1: See agenda.

MISSION 2:

Main objective:

- Work together to learn how to prepare the application for the Integrated Environmental Permit.

Preparation:

- Documentation to prepare in the last day of mission 1 by MS experts: A template for application form , examples of points they consider important to remark for their complexity or importance during the process of application for the permit and during the public consultation period.
- Twinning office: Translation of the training material into Turkish.

The following <u>focus/contents</u> were agreed (in the case of missions 2 and 3 the exact time distribution is left more open to the criteria of the MS experts who will deliver them):

- Detailed and extensive discussion about how should be the content of each of the documents of the IEP application file.
- Work together to check the problematic points of the IEP application. The experts will have prepared in addition, as exercises or just to comment them, several typical problems that are faced when the application is received, to put them as examples.
- Feedback from the public consultation period.

The fourth day will be devoted by the MS experts to prepare the next training session materials using the conclusions of the previous days.

The Turkish team considers specially interesting the case of existing installations, more than of new ones. The examples and experience from Spain will be very useful.

The expected outcome of mission 2 is an example of how could be the IEP application of the pilot installation.

Additionally, from the experience of this mission, the MS experts may check if some parts of the guides used may be improved.

MISSION 3:

Main Objective:

- Work together to learn how to prepare the Integrated Environmental Permit.

Preparation:

 Documentation to prepare in the last day of mission 2 by MS experts: A template for the permit, examples of points they consider important to remark for their complexity or importance during the process of giving the permit - Twinning office: Translation of the training material into Turkish.

The following focus/contents were agreed (in the case of missions 2 and 3 the exact time distribution is left more open to the criteria of the MS experts who will deliver them):

- Make an explanation on what aspects should the permit include and learn how to include those aspects.
- The experts will propose some exercises relative to the preparation of the emissions reports, to learn how to use the BREFs, guides and BAT Conclusions Documents as a reference. Specific request: how to take into account also the horizontal BREFs in the assessment, and during the global assessment phase of the permit.
- EIA and IEP, conflict resolution.
- How to make the global assessment: how to coordinate the reports, flow of information, and possible meetings with the competent divisions or authorities for the reports.





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Motivation: IED implementation not easy!

- > New (additional) legislation and reference documents
- More demanding environmental standards
- Investments to modernise/adapt





➤ 3 missions:

- ✓ M 1 (26-28 feb): introduction, materials, basis for missions 2 & 3
- ✓ M 2 (6-8 may): Preparation of a good permit application
- ✓ M 3 (17-20 june): Assessment & preparation of a good permit
- > M1 didactic , M2 & M3 interactive

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Training programme

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> Objectives of mission 1:

- ✓ Explain training programme
- ✓ Discuss reference materials (by-law, guides, BREFs)
- ✓ Visit İzmit Refinery, see what parts of application can/cannot be completed
- Review together permit application contents
- ✓ EU experts:
 - Establish targets & contents of mission 2
 - Start preparing materials for mission 2





> Objective of mission 3:

- Improve assessment of permit applications
- > Method:
 - ✓ Interactive, with exercises & discussion
 - ✓ Focus on new/problematic aspects of the procedure
 - ✓ Based on characteristics of pilot plant, and other EU plants
 - ✓ Example of IPPC permit will be provided

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Training programme

> Agenda in İzmit, mission 1:

- ✓ Today:
 - Training overview
 - Reference materials & concepts overview (legislation, guides, BREFs, some key aspects of IEP implementation)
- ✓ Tomorrow:
 - Presentation & visit İzmit Refinery
 - First conclusions. Info to prepare missions 2 & 3
- ✓ Thursday:
 - · Permit application document: explanations















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Oil refineries guide

II. Objectives:

- 1. Overview of the sector in Turkey (Chapters 1 and 3).
- 2. Describe the processes, technologies and techniques (Chapter 2)
- 3. Discuss the BATs and some emerging techniques (Chapters 4 and 6)
- 4. Discuss the available tools and methods to monitor and control (Chapter 5)
- > It includes info about BATs from the relevant BREF in Ch. 4
- This guide should constitute a reference for the staff of the MoEU and for the oil refinery installations' representatives.
- > This guide IS NOT A LAW that establishes emission limit values (ELVs)

Ch. 4: BATs & BAT AELs	Tablo 4.7 Yanma birimlerinde ço AEL'ler:	idu gaz kullanımından kaynaklanan SO ₄ emisyonları için BA
	Parametre	BAT-AEL (günlük ortalams) (*) mg/Nm ⁴ 1%3 O ₂ 'de
	SO, (SO ₂ olarak gösterilmiştir) ^{(i) (i)}	35 – 450 mevcut birimler için > 50 MW _m
		35 – 350 (**) 50 ile 100 MWth arası yeni birimler için
		35 – 200 100 ile 300 MWth arası yeni birimler için
		35 – 150 300 MWth'dan büyük yeni birimler için
	(*) Gaz kullanımı yüzdesi dikkate alı join %75 ve svu kullanım kin %1.5 ok	nmştır. Mevcut birimler için aralığın üst ucu gaz kullanımı (RYG) arak besaclanmıştır
	(**) EIPPC8'nin topladiği 2008'e al raporlamada bulunulmarnıştır. Tutarli yakıtlar için tanımlarmış olan aralıklar	t verilerde yanma birimlerinin boyuta (MWth) için sistematik bir fik amacışla yeri birimler için mevcut LCP BREF dökümanında sını ın kullanılması önerlir.
	(1) Mevcut üniteler için Tüzük No.276 için Tüzük No.27605 Ek 2 ve 3'te veri uyulması gerekmektedir.	105 Ek 6 ve 7 de verimiş Emişyon Sınır Değerlerine ve yeni üniteler imiş Emişyon Sınır Değerlerine (her zaman >508 $M_{\rm Pe}$ için geçerlidir)
	5)	
	(2) Bu durumda Madde 14.2 ve 14.3	'te belirtilen metadolojiye göre Tüzlik No.27605'te verilen Emisyon

değerinin, sıvı yakıtlar için standart baca gazı faktörü olarak kabul edilmesi önerilmektedir.

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•	Oil refineries guide
Ch. 5: Monitori	ing & control
✓ Example	e: Calculations of flue-gas factors for liquid fuel oils:
SIVI YAKIT YAĞLAI	R İÇİN BACA GAZI FAKTÖRÜ
Sıvı yakıt yağlar, ki	ütlece bileşimleri temel alınarak analiz edilir:
%a C+ %b H + %c S	5 + %d N+ %e O
QFO b	baca gazları = [% 0.0889 C + % 0.211 H + % 0.03335 + % (6.8 x k + 0.8) N
	- % 0.02630] x (21/18)/NCVFO (MJ/kg)
k, tam	namen oksitlenmiş nitrojen oranı olmak üzere



	Oil refineries guide	
es:	KONIL	DDEE VIENA
	KONU	BREF KISMI
	rakit tuketiminin azaitiinasi ve isii/enerji	5.1.2
	wa emisuonlaruni azaltmak icin BAT'lar	
	BAT ile iliskili emisyon düzevlerini (BAT AFI'ler) ve toz	5 21 1 5 21 5
	emisyonlarını azaltmak için teknikler	5.2.2.2, 5.2.2.5
	BAT ile iliskili emisvon düzevlerini ve SO2	5.21.3. 5.21.5
1	emisyonlarını azaltmak için teknikler	
	BAT ile ilişkili emisyon düzeylerini ve NOx	5.21.2, 5.21.5
4	emisyonlarını azaltmak için teknikler	
	BAT ile ilişkili emisyon düzeylerini ve CO emisyonlarını	5.21.4
	azaltmak için teknikler	
	BAT ile ilişkili emisyon düzeylerini, koku emisyonlarını	5.21.6
-	ö ve Uçucu Organik Bileşikleri azaltmak için teknikler	
	Diğer kirleticileri emisyonunu azaltmak için teknikler	5.21.7
	(agır metaller, aromatik bileşenler, metan, vb.) ve BAT	
-	Tehlikeli bilesenlerin emisuonu /DAM dieksin Klerür	E 21.7
	wh)	5.21.7
SI	ı tüketimini ve atık su desariının azaltmak icin BAT'lar	
	Atık su desarilarının akısı ve kirletici kütlesi	5.1.7. 5.22
10	Atık yönetimi icin BAT'lar	5.1.8, 5.23
1	Toprak ve yeraltı suları riskleri	
1	Çevre Yönetim Sistemleri. Çevre yönetimi için BAT'lar	5.1.1, 5.1.10

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Annexes:	10.1 HAVA EF Yakma ve katalitik verilmelidir, Genell prosesi için %3 0 _{27 E} Metal emisyonları i	MİSYONLARI proseslerinde oksijen için re ikle bu değerler, katalitik kır şaz türbinleri ve motorları için çin BAT ile ilişkili emisyon dü:	ferans koş ma ve (sn ise %15 O teyleri, BRI	sulları, ilgili olduğu verileri vı veya gazlı yakıt kullana 1 ₂ 'dir. EF ve EIPPC rafineri çalışmı	ie birlikte n) yakma a gruptan
	PARAMETRE	KAYNAK	BAT	BAT-AEL (günlük ortalama) (mg/Nm ³)	Türkiye'deki mevcut Emisyon Sınır Değeri
		Katalitik Kırma	9	< 5 - 25	
		Koklaştırma prosesi	10	5 - 50	
	Toz	Yakma üniteleri	11	Mevcut üniteler için 5 – 50	
		200201000-2002000-000		S = 25	
		Katalitik kema	12	100 - 500	
		Koklastirma prosesi	13	< 450	
				Rafineri Yakıt Gazı gaz ateşlemesi (%3 O ₂): 5 - 35	
				Çoklu yakıt ateşlemesi (%3 O ₂): 35 – 450 Mevcut üniteler için >50 MW _m	
	SO ₂	Yakma üniteleri	14	35 – 350 Yeni üniteler için 50 - 100 MW _{th}	





Review and update of permit conditions:

1. Duration of permit (art. 28 of By-Law)

- 2. Criteria defining "substantial change"
 - Addition of non-substantial changes may lead to substantial one



Basic guide for industries

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Explanations of some concepts of IEP By-Law:

- 1. Equivalent parameters and technical measures
- 2. General Binding Rules
- 3. Environmental Quality Standards
- 4. Ownership cases
- 5. Flexibility to modify ELVs
- 6. Assessment as a whole of environmental impacts
- 7. "Compounds" of Annex II







□ From 10 refineries 8 answered, average 107 million €



CONCAW	/E ai	uide	on B	l re AT ir	fine nole	ries mentation co	sts for refine
Tablo 1	CONCAW formans	E Rap ve mali rşılaştırı	or 4/09'da vet etkinlik Iması	önerilen değerler	AEL a	ralık değerlerine dayanan den elde edilen açıklayıcı	
	Operasyo	nel Veri		Maliyet	Etkinliği	Yorum	
Uygulama	alt değer	üst değer	birimler	alt değer	üst değer		
Yakma NOx - gaz	50	200	mg/Nm		450	450 mg/Nm ³ başlangıç konsantrasyonuna SNCR veya SCR uygulaməsindan maliyet etkin bir AEL aralığı	
Yakma NOx - çift əteşli (sıvı > %50, N < %0.5)	300	450	mg/Nm			türetilemedi.	
Yakma SO ₂	önerilme	di	mg/Nm	162	1000	WGS uygulaması veya Yakma kabarcığına uygulanan Doğal Gaz ile Yakıt İkamesi.	
FCCU NOx - tam yanma	300	700	mg/Nm			s Bu çalışmayla 750 mg/Nm başlangıç konsantrasyonuna SNCR veva SCR	
FCCU NOx - tam yanma - Antimon enjeksiyonuyla çöketti	300	1000	mg/Nm ³	1	750	uygulamasından maliyet etkin bir AEL aralığı tanımlanamadı.	
ECCU NOv - kismi yanma	100	800	3	1			









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- > Key issues and common problems
- Application of the IEP
- 4. Overview of the key elements in a refinery



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1. Objective and Basis of the Training

- > To give advise on the preparation of Integrated Environmental Permits and permit applications for Turkish refineries
 - ✓ Resolve common problems and doubts during the permit application stage
 - ✓ Identify the key elements in refineries that will have to be assessed in the application
 - ✓ Example of application for IEP with a pilot plant

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1. Objective and Basis of the Training

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Spanish Team delivering the training

- Luis Suárez Lasierra (Missions 1, 2 and 3)
 - Industrial Engineer
 Regional Environmental Competent Authority of Castilla La Mancha
 Senior permit writer of environmental permits
 21 years experience in environment
- > Joan Ramón Cabello Rimbau (Missions 2 and 3)

 - an Ramon Cabelio Rimbau (Missions 2 and 3) Industrial Engineer Regional Environmental Competent Authority of Catalonia Senior permit writer of environmental permits 10 years experience in environment •
 - . .

- Marta Tejedor de Vega (*Mission 1*)
 Environmental Advisor
 Ministry of Agriculture, Food and Environment. Industrial Environment Department
 Technical Assistance for IPPC implementation at central level
 6 years of experience in environment



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2. Background Legislation

European Environmental Legislation

> Directive 2010/75/UE, on Industrial Emissions (IED), November 24th 2010 Recast of 7 directives:

✓ IPPC Directive (Chapters I & II)

- ✓ Large Combustion Plants (Chapter III)
- ✓ Waste Incineration (Chapter IV)
- ✓ Solvents emissions (Chapter V)
- ✓ 3 Directives on Titanium Oxide (Chapter VI)
- > Other environmental legislation applicable: Water Framework Directive, Air Quality Directive, Regulation 166/2006 on European Pollutant Release and Transfer Register, Waste Directive, Environmental Liability Directive, Directive on Public Access to Environmental Information, etc.

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2. Background Legislation

New requirements of IED 2010/75/UE (Chapter II)

> Permit conditions

- For the whole environmental performance of the installation:
 For the whole environmental performance of missions to air, water and land
 Noise

 Generation of waste
 Prevention of accidents

 Use of raw materials
 Protection of soil

 Foregoverfliciency
 Restoration of site upon closure
- Based on the Best Available Techniques
 - Best: most effective in achieving a high level of protection of the environment as a whole Available: developed on a scale which allows implementation under economically and
 - technically viable conditions, taking into consideration the costs and advantages
 - Techniques: includes both the technology used and the way in which the installation is designed, built , managed, maintained, operated and decommissioned

2. Background Legislation

- > Emission Limit Values can not exceed the BAT-Associated Emission Levels (BAT-AELs) under normal operating conditions
- > BAT Conclusions and BAT-AELs are established according to the technical information contained in the BAT reference documents (BREF)
- > In order to draw up, review and update BAT reference documents, the Commission shall organize an exchange of information between Member States, the industries concerned, non-governmental organizations promoting environmental protection and the Commission

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2. Background Legislation

BAT Conclusions

Document containing the parts of a BAT reference document laying down the conclusions on best available techniques, their description, information to assess their applicability, the emission levels associated with the best available techniques (BAT-AEL), associated monitoring, associated consumption levels and, where appropriate, relevant site remediation measures



- BREF Document for Refining of mineral Oil and Gas
 Chapter 5: BAT and BAT-AELs
- Commission Implementing Decision establishing the BAT Conclusions for the Refining of mineral Oil and Gas (foreseen in 2013)

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2. Background Legislation

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- BAT Conclusions for Refining of Mineral Oil
 BREF Document Chapter 5: Best Available Techniques
- Best Available Techniques Guide for Oil Refineries (Chapter 4)
- . . .
- > Example: BAT Conclusion for catalytic reforming process



- The implementation of these techniques is not mandatory
- The fulfillment of the BAT-AEL is obligatory

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2. Background Legislation

Relevant BREFs for Refining industry

- BREF Document for Refining of mineral Oil and Gas (Submission of the Final Draft BREF foreseen on 2013)
- General Principles of Monitoring (the IPPC Bureau is working on a JRC Reference Report on Monitoring)
- Common Waste Water and Waste Gas Treatment in the Chemical Sector (Submission of the Final Draft BREF foreseen on 2013)
- Large Combustion Plants (Submission of the Final Draft BREF foreseen on 2014)
- Energy Efficiency (Submission of the Final Draft BREF foreseen on 2017)
- Industrial Cooling Systems (Submission of the Final Draft BREF foreseen on 2017)
- Emissions from Storage (Submission of the Final Draft BREF foreseen on 2019)
- Economics and Cross-media Effects

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2. Background Legislation

> Baseline Report

- When the activity involves the use, production or release of relevant hazardous substances having regard to the possibility of soil and groundwater contamination
- Information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities
 The Commission will establish guidance on the content of the baseline report (foreseen on
- March 2013)
- > Control and Monitoring requirements
 - ✓ Based on the conclusions on monitoring as described in BAT Conclusions
 - Specify: method, frequency and evaluation procedure
 - Report every year results of controls and other data
 - Control at least every 5 years for groundwater and every 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination

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2. Background Legislation

Public information

- Permit applications and permits granted
- ✓ Results of the monitoring of releases
- Environmental inspections reports
- The European Pollutant Release and Transfer Register (E-PRTR)

> Environmental Inspections

- Competent Authorities elaborate Inspection Plans on the basis of a Systematic Appraisal of the Environmental Risks
- The frequency of site visits is set on the basis of the risk appraisal (1 year for installations posing the highest risk and 3 years the lowest)
- Inspection reports of the site visits describe the relevant findings regarding compliance with the permit conditions and conclusions on necessary actions

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2. Background Legislation

Environmental Inspections: Appraisal of the Environmental Risks

- ✓ Different methods for Risk Based Approach
- Risk = function of the severity of the impact consequences (effects) and the probability with which this consequence will happen
 - □ Effect: depends on the source and on the receptor → Impact Criteria (IC)
- Weighting the different criteria (give importance to IC and OPC so one criterion gets a higher weight in the calculation than another)
- Assessment of the different factors that influence the risk (different risk assessment methods)
- Establishment of Risk Categories: the inspection frequency will be determined by the highest value

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2. Background Legislation

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Environmental Inspections: Effective Tools developed by the Network for Implementation and Enforcement of European Environment Legislation (IMPEL)

- ✓ Doing the Right Things: A Step-by-step guidance for planning environmental inspections based on the European Parliament and Council Recommendation (2001/331/EC) for Minimum Criteria for Environmental Inspections (RMCEI)
- EasyTools: web based tool for the Risk Assessment in Inspection Planning and guidance book that covers all steps of the methodology.







2. Background Legislation



By-Law on the Permits and Licenses required under the Environment Law Main gaps for the implementation of IED

- No reference to BAT Conclusions
- > ELVs do not necessary comply with the BAT-AELs
- > Public participation and access to environmental information are insufficient
- > Annexes of By-law 27214 differ from those of the IED (related to Chapter II)
- Integration with EIA: permits are granted after the EIA and construction of the installation (limited assessment of pollution abatement techniques and ELVs)
- Environmental inspections requirements according with article 23 of IED
- > Indirect effects of pollution from one media into another are not considered
- Energy efficiency considerations are absent
- Requirements for site closure are not specified





3. Integrated Environmental Permit (IEP)

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3. Integrated Environmental Permit

Basis of the IEP

New environmental permitting system for the installations described in Annex 1 of IEP By-Law (e.g. 1.2. Refining of mineral oil and gas)

- Combines in one procedure all the existing environmental permits:
 - ✓ Waste production and management
 - ✓ Discharge of wastewater
 - ✓ Air and noise pollution
- IEP By-Law transposes the requirements of the Chapters I and II of the Industrial Emissions Directive 2010/75/EU
- Must be obtained for the construction, operation, making of any substantial changes and decommission of the activities in Annex 1
- > Foreseen to be published in 2014

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3. Integrated Environmental Permit

Basis of the IEP

- > Permit conditions based on the BAT Conclusions
- The BAT-AELs are obligatory but the implementation of a given BAT mentioned in BAT Conclusions is not mandatory
- Special cases for extra adaptation period or ELVs less restrictive than the BAT-AELs: the operator must provide an assessment that justifies that the achievement of BAT-AELs would lead to disproportionately higher costs compared to the environmental benefits due to:
 - ✓ The geographical location or the local environmental conditions of the installation
 - ✓ The technical characteristics of the installation

3. Integrated Environmental Permit

Basis of the IEP

Emission Limit Values

- The ELVs are based on Best Available Techniques, without prescribing the use of a certain technique, taking into account the technical details, geographical location and local environmental conditions of the installation
- The ELVs must ensure that emissions do not exceed the BAT-AELs under normal operating conditions (if national legislation is more restrictive these limits will apply)
- Less restrictive ELVs may be set if the assessment cost/environmental benefit is well justified and if the emission limit values from applicable legislation are not exceeded. This condition will be re-assessed by the Competent Authority
- Emission limit values may be supplemented or replaced by equivalent parameters or technical measures ensuring an equivalent level of environmental protection
- General Binding Rules: Emission limit values or other permit conditions applicable for the whole sector

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3. Integrated Environmental Permit

Basis of the IEP

Public participation

- > Public participation in the following procedures:
 - ✓ Granting of a permit for new installations
 - ✓ Granting of a permit for any substantial change in an installation
 - ✓ Updating of a permit or permit conditions

> Information available to the public:

- The content of the decision and a copy of the permit, including any updates
- The reasons on which the decision is based
- Explanation on where an exemption is granted and less strict emission limit values are set
- Relevant information on the measures taken by the operator upon definitive cessation of activities
- The results of emission monitoring as required under the permit conditions

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3. Integrated Environmental Permit



Basis of the IEP

Review and updating of permit conditions

- Within 4 years of publication of decisions on BAT Conclusions the permit will be reviewed and will incorporate the new BAT conclusions applicable
- Substantial Changes:
- Criteria to define a change as substantial described in Annex V (e.g. increase of capacity production, increase on water or energy production, generation of new hazardous pollutants, increase of discharges flows, etc.)
- Impact assessment of the change:
- The quality and regenerative capacity of the natural resources
 The risk of accident
 - · Change of installation's location
 - · Change of fuel and/or firing system of the installation
- The operator can not carry out the substantial change until a new/reviewed permit is granted

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3. Integrated Environmental Permit

IEP Content

- Emission Limit Values for polluting substances listed in Annex-2
- Measures for soil and groundwater protection and requirements for the periodic monitoring in relation to relevant hazardous substances likely to be found on site
- > Measures for control and management of waste generated
- > Provisions on the minimization of long-distance pollution
- Monitoring requirements: measurement methodology, frequency and evaluation procedure
- Measures for other-than-normal operating conditions (e.g. start-up and shutdown operations, leaks, malfunctions, momentary stoppages and definitive cessation of operations)
- Conditions established in the applicable environmental legislation (including ELVs)
- > Requirements for the cessation of activities or closure of the installation
- Conditions for assessing compliance with the ELV

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3. Integrated Environmental Permit

IEP Content: Environmental conditions

- 1. Atmosphere
 O Air Quality (Immission Limit Values, Monitoring and modelization)
 Emissions
 Channeled emissions
 Characterization of the emission points

 Characterization of the emission points
 Requirements and technical conditions of the focus
 Emission Limit Values or equivalent parameters (Description BAT implementation)
 Monitoring and control (Normal operating conditions and measurements for not normal operating conditions, Measurement methodology, Frequency, ELV assessment procedure)
 Diffuse emission points.

 - Oescription of the emission points
 Emission Limit Values or equivalent parameters (Description BAT implementation)
 Monitoring and control (Measurement methodology, Frequency, ELV assessment procedure)

2. Waste water discharges

- Vescription of the waste water flows
 Requirements and technical conditions of discharging points
 Description of pollutants (ELVs or equivalent parameters, Description BAT implementation)
 Monitoring and control (Normal operating conditions and measurements for not normal
 operating conditions, Measurement methodology, Frequency, ELV assessment procedure)

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3. Integrated Environmental Permit

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IEP Content: Environmental conditions

3. Waste

- trastet
 Waste from production processes (Hazardous and Non-Hazardous wastes)
 Waste production (Characterization, Plan for the minimization, Storage conditions, Description
 BAT implementation)
 Waste management (Offsite & In-site; Treatment operations, Technical requirements for
 disposal)
 Other waste not related to production processes

4. Soil and groundwater protection

- Soil characterization and composition
- Preventive actions regarding lower environmental impact (Safety measures for storages, Systems of drainage or collection of potentially polluted waters)
 Monitoring and control of the groundwater (Measurement methodology, Frequency)

5. Noise emissions

- Characterization of the main sources
- Emission Limit Values or equivalent parameters (Description BAT implementation)
 Monitoring and control (Measurement methodology, Frequency, ELV assessment procedure

6. Inspections (Generic requirements to be fulfilled by the operator to facilitate inspections)

3. Integrated Environmental Permit

IEP Content: Annexes

> Technical Annexes:

- Not normal operating conditions which may affect the environment
- ✓ Exceedance of ELV
- ✓ Shut-down and start-up conditions
- ✓ Accidents and incidents related to leakages, malfunctions and momentary stoppages
- Environmental information to provide to the Competent Authority
- ✓ Reporting on monitoring and control
- ✓ Compliance assessment
- Maintenance and calibration plan

> Other Annexes: Final Report on EIA

SEVESO report (classification of the installation according to applicable legislation on control of major-accident hazards involving dangerous substances)

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3. Integrated Environmental Permit



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Baseline Report

- When there is the possibility of soil and groundwater contamination through the use, production or release of relevant hazardous substances the operator will prepare a baseline report including:
- Information on the present use and on past uses of the site
- Existing information on soil and groundwater measurements that reflect the state at the time the report is drawn up having regard to the possibility of soil and groundwater contamination by hazardous substances used, produced or released

Site closure

- > Requirements for the restoration of the site upon closure
- > Where the contamination of soil and groundwater poses a significant risk to human health or the environment, the operator will take the necessary actions aimed at the removal, control, containment or reduction of relevant hazardous substances



3. Integrated Environmental Permit

Key issues and common problems

Deadlines fulfillment

- Several countries have had problems to comply with the deadlines to give the permit, to avoid them some aspects to consider are:
- Scheduling different deadlines for sectors: priority sectors could be scheduled for having the IEP by 2021 (BAT-AELs would be already mandatory in Member States)
- Training activities for industries and authorities
- Plan the procedures as automatic as possible
- Standards applications
 - · Electronic applications if possible
 - Electronic tools to automate processes (e.g. PRTR database, automatic validation process, electronic inspection reporting)
- Prepare administrative procedure for the modification of installations
- ✓ Adoption of guidance documents for different sectors (e.g. Best Available Techn iques Guide for Oil Refineries)

3. Integrated Environmental Permit

Key issues and common problems

Estimation of resources for implementation at national and regional level

- > Coordination of activities among different administrative levels (and within the same level) is essential
- Exchange of information and experience among the environmental authorities (e.g. establishment of working groups)
- Example of good practice: Spanish Network for Environmental Inspections (REDIA)
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- Imple of good practice: Spanish Network for Environmental Inspections (REDIA)
 Members: Environmental Autorities responsible of Environmental Inspection in all Regions
 and the Ministry of Agriculture, Food and Environmental Affairs
 Common Interest projects development of Inspection Plans according to the IMPEL guideline
 "Doing the Right Things II"
 Analysis of the current state of environmental inspections in the Regions
 I Analysis of the current state of environmental inspections in the Regions
 I Analysis of the current state of environmental inspections in the Regions
 I Analysis of the current state of environmental inspections in the Regions
 I Analysis of the current state of environmental inspections in the Regions
 I Analysis of the current state of the IDD into the Spanish legislation
 Participation in many IMPEL projects

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3. Integrated Environmental Permit Key issues and common problems

- Understanding of BAT and BAT Conclusions
- Training of personnel responsible for maintenance and daily operation of the installation
 Implementation of BAT
 - ✓ High cost of technology or emerging techniques
 - Difficulties to implement BAT for old installations
- Difficulties to reach the BAT-AELs
 - The technique has been implemented but the associated emission level exceeds the BAT-AEL (importance of information submission during the revision process of the BREF)



3. Integrated Environmental Permit Key issues and common problems

Identification of BAT applied in the different processes/units

- The operator will have to assess which BATs are applied or are previewed to be implemented
- Example: BAT applicable in Combustion Units
 - SOx emissions reduction: Selection/treatment of fuel (replacement of liquid fuels, treatment of refinery fuel gas, hydrotreatment)
 - NOx emissions reduction: Selection/treatment of fuel (replacement of liquid fuels, hydrotreatment); Combustion control and modifications (staged combustion, optimization techniques, Low-NOx burners, flue-gas recirculation, diluents injection); Secondary techniques (SCR, SNCR, low temperature oxidation)
 - Dust emissions reduction: Selection/treatment of fuel (replacement of liquid fuels, hydrotreatment): Combustion control and modifications (i.e. optimization techniques, atomization of liquid fuel); Secondary techniques (ESP, fabric filter, wet scrubbing, centrifugal washers)
 - CO emissions reduction: Combustion operation control techniques

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3. Integrated Environmental Permit

Key issues and common problems

Compliance assessment

- The monitoring requirements in the permit must clearly identify the information necessary to evaluate the compliance with the ELVs

 - ✓ Reference conditions (e.g. flue-gas humidity, temperature, pressure, flow, %O₂)
 - Measurement methodology (average periods, national or international standards)
- Example: Reference conditions for BAT-AELs concerning air emissions:
 - ✓ Daily average values
 - Units = concentrations (in the case of water discharges, emission factors and concentrations)
 - ✓ Standard conditions (dry gas, 273.15 K, 101.3 kPa)
 - ✓ Periodic measurements: average value of three spot samples of at least 30 minutes each
 - ✓ Continuous measurements: daily average values
 - ✓ Reference % O₂
 - + Combustion process (using liquid or gaseous fuels) and catalytic cracking = $3\% O_2$
 - Gas turbines and engines = $15\% O_2$

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3. Integrated Environmental Permit

Key issues and common problems

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New pollutants and parameters to control

Example: Wastewater discharges

- > Pollutants controlled in the refining sector in compliance with current regulation in Turkey
- ✓ COD, Conductivity, Suspended solids, Total CN, Sulfides, Oil-Grease, Hydrocarbon, NH4-N, Phenol and Cr+6
- > Pollutants that will have to be controlled in compliance with the IEP By-law
- ✓ Total Hydrocarbon content (THC), Total suspended solids (TSS), Chemical oxygen demand (COD), BOD5; Ammoniacal nitrogen (expressed as N), Total nitrogen (expressed as N), Lead, expressed as Pb, Cadmium, expressed as Cd, Nickel, expressed as Ni, Mercury expressed as Ha, Phenol, BTEX (Benzene, Toluene, Ethyl-benzene, Xylene)

4. Overview of the key elements in a refinery

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4. Overview of the key elements in a refinery

Refinery processes/units where BAT are applicable

- inery processes/units where BAT are applicable
 Combustion Units (BAT-AELs for N0x, S0x, Dust, metals and CO)
 Fluid Catalytic Cracking regeneration of catalyst (BAT-AELs for N0x, S0x, Dust, metals and CO)
 Catalytic Reforming
 Waste Gas Treatment Systems (BAT-Associated S0x removal efficiency for flu-gas desuphurisation (FGD) and BAT-Associated suphur recovery efficiency for waste gas suphur)
 Waste Water Treatment Plant (BAT-AELs for direct wastewater discharges)
 Coking processes (BAT-AELs for Dust, metals and S0x)
 Hydrocracking
 Flaring system
 Distillation Column
 Encryge Fficiency
 Storage and Handling Activities (BAT-AELs for non methanous VOC and benzene emissions to air)
 Waste generation and management

- Waste generation and management Natural Gas Plant Isomerization Plant Others ×
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Useful Documents

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- > Permit Application Refinery (permit application contents)
- > Integrated Environmental Permits: Supporting Guideline for the Applicants
- > Best Available Techniques Guide for Oil Refineries

Useful Links

- > IPPC Bureau: <u>http://eippcb.jrc.es</u>
- > EIA website: http://ec.europa.eu/environment/eia/home.htm
- SEVESO website : <u>http://ec.europa.eu/environment/seveso/index.htm</u>
- > IMPEL website: <u>http://impel.eu/</u>
- > EPA download centre: <u>www.epa.ie/downloads</u>







PERMIT APPLICATION CONTENTS. OIL REFINERIES.







BASIC PROJECT FOR THE REQUEST OF THE INTEGRATED ENVIRONMENTAL PERMIT OF THE FACILITIES OF :

LOCATED IN:

DATE OF ISSUE:

-
APPROVED BY ² :
Name Signature

INDEX

¹ Persons or company that have prepared the permit application

² Person who certifies the validity of this permit application on behalf of the company that owns the facilities for which the integrated environmental permit is requested.





Important preliminary explanations to fulfill this document Non Technical Summary

Project Report

- 1. General data
- 2. Description of the installation
- 3. Technical characteristics
 - Processes (units) in the refinery
- 4. Summary of the production processes (units).
- 5. Natural resources, raw and auxiliary materials and products.
- 6. Environmental emission and controls:
 - **DISPERSION MODEL.**

AIR QUALITY CONTROL NETWORK

- 6.1. Atmospheric emissions.
 - 6.1.1 Channelled emissions.

BLOWING OPERATIONS

- 6.1.2 Non channelled emissions (fugitive emissions):
 - Odour control and VOC emissions.
 - **VOC emissions (LDAR Program)**

Odour Control

- 6.2. Noise emissions to the surroundings of the installation.
- 6.3. Wastewater discharges.

STUDY OF ASSESSING TOXICITY, PERSISTENCE AND BIOACCUMULATION OF EFFLUENTS

6.4. Waste:

Waste production.

Waste management.

6.5. Soil and groundwater protection:

MONITORING PROGRAM.

6.6 Operation under not normal conditions:

ANNEXES

Annex 0

Maps of the refinery.

- Units in the refinery. (labelled)
- Emission point sources. (referenced to labels)
- Diffuse emissions (referenced to labels).





- Rain water collection network (with intermediate storages, pumps, etc.)
- Points of Leak Detection and Repair (LDAR) Program.
- Air quality monitoring network.
- Points of waste storage and/or treatment.
- Site investigation of the Soil Monitoring Program.

Annex I

Material safety data sheet (MSDS) and product safety data sheet (PSDS)

Annex II

Atmospheric Dispersion Model

- Meteorological data.
- Emission sources with their heights and characteristics.

Annex III

Air Quality Network.

- Design of the Air Quality Network.
- Description of the Air Quality Network.

Annex IV

Leak Detection and Repair (LDAR) program

Annex V:

Soil Monitoring Program

- Site investigation / characterization of the existing contamination
- Stage 2: Monitoring
- Stage 3: Remediation.

Annex VI:

Environmental Monitoring and Enforcement Plan

- Assessment of ELVs compliance.
- Samplings and inspection frequencies.
- Frequency and systems to report to the Environmental Competent Authority.

Annex VII:

Summary of BATs for processing units.

- Applied BATs
- Planned BATs (with their expected implementation schedule)





IMPORTANT PRELIMINARY EXPLANATIONS TO UNDERSTAND AND COMPLETE THIS DOCUMENT:

1.- You must complete not only the tables provided but also you must answer to all the information requests listed throughout this document.

2.- When permits or other documents requested are already included in the EIA report, you can make reference to the sections within the EIA where the requested permits or other documents can be found.

NON-TECHNICAL SUMMARY

Non-technical summary of the details specified in the rest of the permit application, to enable its comprehension in the public information period. Concerning this report the size should not exceed 20 pages.

The summary should identify all environmental issues of significance associated with the carrying on of the activity, and describe mitigation measures proposed or existing to fulfill all the current applicable environmental legislation.

The following information must be included in the non-technical summary:

A description of:

- the installation and its activities.
- the raw and auxiliary materials, other substances and the energy used in or generated by the installation,
- surroundings of the site (environmentally relevant aspects): surface waters, sea waters, flora, fauna, nature protected areas, populated areas, infrastructures (roads, railways...) and industries in the vicinity.
- environmental management systems implemented in the installation.
- interaction of the installation with its environment:
 - Air emissions
 - Air quality
 - Wastewater discharges
 - Water quality of the water bodies receiving the wastewater discharges
 - Noise emissions
 - Hazardous substances used
 - Soil
- Emissions' monitoring and control plan

Include as well a yes/no answer to the following questions:







- (a) all the appropriate preventive measures are taken against pollution, in particular through application of the Best Available Techniques (BAT);
- (b) no significant pollution is caused;
- (c) waste production is avoided in accordance with Council Directive 75/442/EEC of 15 July 1975 on waste; where waste is produced, it is recovered or, where that is technically and economically impossible, it is disposed of while avoiding or reducing any impact on the environment;
- (d) energy and other resources are used efficiently;
- (e) the necessary measures taken to prevent accidents and limit their consequences;
- (f) the necessary measures are taken upon definitive cessation of activities to avoid any pollution risk and return the site of operation to a satisfactory state.

PROJECT REPORT

The project report shall include, at least, the following basic elements related to the installation:

1. General data:

- Name of the company, trade name, VAT number, full address (including location, province, town, region and country), telephone, fax, e-mail.
- Owner of the installation, operator, legal representative, person in charge of the plant or production (if applicable), person in charge of environmental issues (if applicable) and contact person with his/her corresponding data (full name, position in the company, address, telephone and e-mail).

	COMPANY					
Trade name						
Head office						
ZIP code	City					
	VAT					
Province		Telephone				
Fax		E-mail				
	I	NSTALLATION				
Name						





Adress	ZIP code
City	Province
Telephone	E-mail
Person of contact	

2. Description of the installation:

- 2.1. Number of work centres, plants, delegations, headquarters, corporate address... The data of the contact person, position, address, telephone, fax and e-mail should be included for each of the centres.
- 2.2. Register number of the Ministry of Industry.
- 2.3. National Classification of Economic Activities (NACE).
- 2.4. Total number of workers.
- 2.5. Investments targeted to environmental improvements.
- 2.6. Organization chart (hierarchic representation of the staff with their corresponding positions or jobs).
- 2.7. Location: The UTM coordinates should be included, attaching a location map.
- 2.8. Local and/or regional information on the urban planning, soil uses and conditions (topographical, morphological, geological conditions ...), soil classification (urban land, non-urban area, rural land, and industrial and special soils ...) and weather conditions.
- 2.9. Main activities and others
- 2.10. Description of the environmental status of the site where the installation will be located and any impacts that may be foreseen, including any that may arise upon definitive cessation of the activities at the installation(for installations subject to EIA, this information is included in the EIA report).

As part of the information requested above these tables should be completed:

CHARACTERIZATION OF WORKING REGIME					
Number of staff	Permanent				
	Temporal				
Working hours	Hours/year ³				

³ When the installation has several power generation units, it will be considered as working hours those when at least one of those power generation units is working.





Date of the start of the activity of the facilities							
Date of commissioning of the Facility							
Coordinates UTM	X:	Y:	UTM zone ⁴ :				
Geographical coordinates	Latitude:		Length:				
Extension of the Facility [m ²]							
Neighboring settlement areas							
Watercourses affected [*]							
Nearby infrastructure*							
Environmental elements affected [*] Nature reserve, zone of hunt, endemic flora							

*Location and distance with respect to the installation

Note:Attach a site plan for 1:5000 mapping

CATEGORY OF ACTIVITIES AND FACILITIES						
Main category of activity /Facility	Heading annex 1 of IEP By-Law					
Other categories activity/Facility	Heading annex 1 of IEP By-Law					
NACE (National Classification of Economic Activities) code:						
Investments in the last 4 years targeted to environmental improver installations)	ments(only for existing					

⁴ UTM Zone: Turkey is between the zones 35 and 38.





Information on the Urban planning

For new installations, or for existing installations that want to make a substantial change, the facility shall provide an urban compatibility report issued by the corresponding Competent Authority.

Information should be provided about the site of the installation: if it is an industrial area, if the soil is an industrial urban one or not (it could be an undeveloped land or a protected soil) and if that zone has the necessary equipments developed or not (like a sewage network, street lighting...)

Organization chart (hierarchical representation of the staff with their corresponding positions or jobs).

Note : attach chart

Environmental status of the site where the instalation is located.

Here the goal is to know if the installation is located in a zone or close to a zone with some special environmental value, for example near a nature reserve.

Environmental impacts.

For existing installations, a brief summary about environmental status and impacts. For new installations or substantial changes, they submit the EIA report.





3. Technical characteristics:

- 1. Processed Crude Oil
- 2. Refining Production
- 3. Storage capacity
- Crude Oil
- Final products

Flow chart

Example 1 of flow chart:



PERMIT APPLICATION CONTENTS. OIL REFINERIES



Eşleştirme Projesi TR 08 IB EN 03 IPPC – Entegre Kirlilik Önleme ve Kontrol T.C. Çevre ve Şehircilik Bakanlığı



Example 2 of flow chart:



PROCESSES (units) IN THE REFINERY.

The permit application will focus on the units present in the refinery, selecting and numbering them.

Units can be for example selected and numbered according to the description of the next table and placed into the map of the refinery (the map will be included in Annex 0)

Process name	Existing (Yes/No) Unit Number with its Labels	Method	Purpose	Feedstock(s)	Product(s)
FRACTIONING PR	OCESSES				
Atmospheric distillation		Thermal	Separate fractions	Desalted crude oil	Gas, gas oil, distillate, residue
Vacuum distillation		Thermal	Separate w/o cracking	Atmospheric tower residue	Gas oil, lube stock, residue





Catalytic cracking		Catalytic	Upgrade gasoline	Gas oil, coke distillate	Gasoline, petrochemical feedstock
Coking		Thermal	Convert vacuum residues	Gas oil, coke distillate	Gasoline, petrochemical feedstock
Hydro-cracking		Catalytic	Convert to lighter HCs	Gas oil, cracked oil, residue	Lighter, higher- quality products
Hydrogen steam reforming		Thermal/ catalytic	Produce hydrogen	Desulfurized gas, O ₂ , steam	Hydrogen, CO, CO ₂
Steam cracking		Thermal	Crack large molecules	Atm tower hvy fuel/ distillate	Cracked naphtha, coke, residue
Visbreaking		Thermal	reduce viscosity	Atmospheric tower residue	Distillate, tar
CONVERSION PRO	CESSESUNIFICATI	ION			
Alkylation		Catalytic	Unite olefins & isoparaffins	Tower isobutane/ cracker olefin	lso-octane (alkylate)
Grease compounding		Thermal	Combine soaps & oils	Lube oil, fatty acid, alky metal	Lubricating grease
Polymerizing		Catalytic	Unite 2 or more olefins	Cracker olefins	High-octane naphtha, petrochemical stocks
CONVERSION PRO	CESSESALTERATIO	ON OR REAR	RANGEMENT		
Catalytic reforming		Catalytic	Upgrade low- octane naphtha	Coker/ hydro- cracker naphtha	High oct. Reformate/ aromatic
Isomerization		Catalytic	Convert straight chain to branch	Butane, pentane, hexane	lsobutane/ pentane/ hexane
TREATMENT PRO	CESSES				
Amine treating		Absorption	Remove acidic contaminants	Sour gas, HCs w/CO ₂ & H ₂ S	Acid free gases & liquid HCs
Desalting		Absorption	Remove contaminants	Crude oil	Desalted crude oil
Drying & sweetening		Abspt/ therm	Remove H ₂ O & sulfur cmpds	Liq Hcs, LPG, alky feedstk	Sweet & dry hydrocarbons
Furfural extraction		Absorption	Upgrade mid distillate & lubes	Cycle oils & lube feed-stocks	High quality diesel & lube oil
Hydrodesulfuriza tion		Catalytic	Remove sulfur,	High-sulfur residue/ gas oil	Desulfurized olefins

CONVERSION PROCESSES--DECOMPOSITION



PERMIT APPLICATION CONTENTS. OIL REFINERIES

Eşleştirme Projesi TR 08 IB EN 03 IPPC – Entegre Kirlilik Önleme ve Kontrol

T.C. Çevre ve Şehircilik Bakanlığı



		contaminants		
Hydrotreating	Catalytic	Remove impurities, saturate HCs	Residues, cracked HCs	Cracker feed, distillate, lube
Phenol extraction	Abspt/ therm	Improve visc. index, color	Lube oil base stocks	High quality lube oils
Solvent deasphalting	Absorption	Remove asphalt	Vac. tower residue, propane	Heavy lube oil, asphalt
Solvent dewaxing	Cool/ filter	Remove wax from lube stocks	Vac. tower lube oils	Dewaxed lube basestock
Solvent extraction	Abspt/ precip.	Separate unsat. oils	Gas oil, reformate, distillate	High-octane gasoline
Sweetening	Catalytic	Remv H ₂ S, convert mercaptan	Untreated distillate/gasoline	High-quality distillate/gasoline
 Other units				

4. Summary of the production process (units).

Include a detailed map of refinery specifying the position of each unit. The units must be positioned using their labels (the map shall be included in Annex 0).

For each of these units (selected from the table above) the following information must be provided:

- A description of the unit.
- Label and position in the map of refinery
- Raw materials
- Products.

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- Connexion with other units
- The techniques used and specifying which of them are considered as Best Available Techniques (BATs)⁵. Just list them here, and then give more detailed explanations about them in Annex VII.

⁵ As defined in the BAT Conclusion documents approved by the European Commission and, therefore, in the Turkish refineries guide.





Example of the information to provide in Annex VII: FLUID CATALYTIC CRACKING: REGENERATOR OF THE CATALYST.



BAT 9: Reduction of dust and metals emissions from the regenerator of the catalyst (catalytic cracking process) (Table 4.1 BAT-AELs for dust and metals emissions from the catalytic cracking process)

1. Primary or process related techniques applied:

Technique	Description	Applied
		Yes/no
1 Use of an attrition-	Selection of catalyst substance which is able to resist abrasion	
resistant catalyst	and fragmentation in order to reduce dust emissions	
	Based on hydrogenation reactions, hydrotreatment aims at	
2 Hydrotreatment of	reducing sulphur, nitrogen and metal content of the feed	
feed	when upgrading the refinery fractions for compliance with	
	products specifications	

2.	Secondary	/ or e	end of	pipe	techniq	ues ap	plied:

Technique	Description	Applied Yes/no
1 Electrostatic precipitator (ESP)	See technique a)	
2 Multistage cyclone separator	See technique c)	
3 Third stage blowback filter	See technique e)	
4 Fabric filter	See technique b)	
5 Wet scrubbing	Gaseous compounds are dissolved in a suitable liquid Simultaneous removal of solid and gaseous compounds may be achieved (REF BREF, Section 4.5.10.2)	





5. Natural resources, raw and auxiliary materials and products:

- Natural resources:
 - a. energy: use of different kind of fuels for heat and steam generation and for transport inside the refinery not including use of crude oil for production.
 - b. water: quantity of water used in the process, intake of surface, ground and marine water detailed description of intake, and indication of the cases of supply of water from outside or re-circulated
- Raw materials: list and quantities of raw materials, indicating hazardous or non-hazardous character with their safety data sheets (MSDS) (include them in Annex I)
- Auxiliary materials: list and quantities of auxiliary materials, indicating hazardous or nonhazardous character with their safety data sheets (MSDS) (include them in Annex I)
- Products and by products: list of output products types and quantity generated of each of them, per hour, day or year, or as expressed in the units indicated in the Annex I of the Integrated Environmental Permit By-Law with their safety data sheets (PSDS) (include them in Annex I)

In addition, as part of the information requested above these tables should be completed:

Annual consumption: crude oil

Year ⁶	Annual amount (MT)	% sulphur (average)
A		
A-1		
A-2		
A-3		

Annual consumption: water and electricity

Year ⁷	Water Annual amount (m³)	Electricity (selfconsumption) (MWh)
А		
A-1		
A-2		
A-3		

⁶ The applicant should provide data of the last 4 years (for existing installations) or estimates for the next 3 years (new installations)

⁷ The applicant should provide data of the last 4 years (for existing installations) or estimates for the next 3 years (new installations)





Electricity generated: (cogeneration units)

Year ⁸	Electricity generated(MWhb)
A	
A-1	
A-2	
A-3	

Auxiliary materials and other products consumed (average)

Auxiliary material or product consumed	
Annual amount(t)	
MSDS in Annex I	
Unit/s process	

Notes:

- The applicant should cover as many tables or columns as auxiliary materials are involved in the process.

- The figures provided should be representative (for existing installations), or for the new installations estimates made based on the design of the installation.

Products / Byproducts (amounts in Thousand Tonnes)

LPG	
KEROSENE	
GASOLINES	
NAPHTAS	
AGRICULTURAL DIESEL	
DIESEL	
FUEL OILS	
ASPHALTS	
BASE OILS	
SULPHUR	
OTHERS	

⁸ The applicant should provide data of the last 4 years (for existing installations) or estimates for the next 3 years (new installations)







6. Environmental emission and controls:

DISPERSION MODEL⁹

The application must include an atmospheric dispersion study, using mathematical models of dispersion of international recognition (include it as Annex II).

You must use a diffusion model incorporating meteorological stations in the area, atmospheric stability data (normally the classification used Pasquill-Gifford), height of the mixed layer (the atmosphere is uniformly mixed) and topographic relief.

Calculation of annual average hourly and daily exceedances and average every eight hours (as envisaged in the Directive on Ambient Air Quality and Cleaner Air for Europe 2008/50/EC) for NO_2 , NO_x , SO_2 , PM_{10} , $PM_{2,5}$ and CO.

Provide in any case the monitoring results for air quality requested in the current applicable legislation.

The dispersion model must be included into the Annex II, in order to facilitate its study by the Competent Authority.

It shall include the meteorological data as well as a map with the location of emission sources, indicating their heights and main characteristics (include the meteorological data and the map in Annex 0).

AIR QUALITY CONTROL NETWORK

The air quality monitoring programme design will depend upon the monitoringobjectives specified for the air quality management in the selected area of interest: the influence area of the refinery.

The design of the Air Quality Network must be based on an air quality assessment providing ground level air quality monitoring data in the neighbourhoods surrounding the Refinery. In this initial study the neighbourhoods of particular interest must be identified¹⁰.

In Annex III it must be included the design of the network, according to these goals and the results of the dispersion model, including a geographical map (Annex 0) of the surrounding area showing the industry position regarding nearest inhabited places, indicating the number of inhabitants in each town/village. This map should also outline forested areas or existing crops, along with their characteristics.

 $^{^9}$ In order to fulfill the requirements of Art. 30.1. of the Industrial Emissions Directive 2010/75/EU

¹⁰ See section 5.1.2 of the BAT Guide for oil refineries







6.1. Atmospheric emissions:

6.1.1. Channelled emissions:

- Description of emissions points: for the emissions produced in each unit, specify the destination. In particular, indicate whether:
 - It is piped directly to the atmosphere (in this case indicate the number characterizing the emission point).
 - It is sent to successive units.
- Requirements and technical conditions of the focus: height to ground level, diameter, outlet horizontal / vertical.
- Gaseous effluents generated: characterize the emissions that originate, specifying them qualitatively and quantitatively. The description should at least provide the following data:
 - Pollutants emitted indicating mass flow [kg / h] and concentration [mg / m³].
 - Air flow $[m^3 / h \text{ to } 0^{\circ}C \text{ and } 0,101 \text{MPa and } \% \text{ O}_2]$.
 - Temperature.
- Abatement equipment: techniques adopted for the treatment of emissions originated in each stage.
- Position, into the map of Annex 0, of each stack point, specifying their label codes.

As part of the information requested above this table should be completed:

C*

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PERMIT APPLICATION CONTENTS. OIL REFINERIES

Emission point		Hours of		Hours of		Pollutants			Emission point Diameter				
No	Unit label ¹²	Description	Flow (Nm ³ /h)	Emission / day	T (≌C)	O ₂ (%)	Pollutant	Concentration (monthly average) (mg/Nm ³)	Mass flow (kg/h)	height above ground (m)	section (m or m ²)	system ¹¹	Observations

 ¹¹ For example: C= Cyclone; F.T.= Fabric filter ; P.E.= Electrostatic precipitator; A.U.V.= Venturi wet scrubber; A.S.= Absorber; A.D.= Adsorber; P.T.= Thermal post-combustion; P.C Catalytic post-combustion; Others= specify.
 ¹² Every emission point must be referenced to the label of its unit and placed in the map of Annex 0





 Plan for Monitoring and Control: It will contain the following data: Emission point, pollutant, sampling, control and data collection, transmission and registration system. The plan may be in any case subject to the modifications considered relevant by the Competent Authority.

As part of the information requested above this table should be completed:

Emission		Monitoring and Control						
(number and unit label)	Pollutant	Internal/ External ¹³	Frequency (continuous, daily)	Description of sampling method	Reports			

BLOWING OPERATIONS

It must be included a programme of blowing operations, that specify the units, frequency and average duration of these operations.

The following aspects must be taken into consideration for the implementation of the programme:

¹³ Here by "internal" it is meant that the monitoring and control is done by the operator of the installation, and "external" means that this task is performed by an external company.





- Adapt the number of blowings to the conditions of the ovens.
- Blow preferably overnight, to reduce the visual impact.
- For stacks with opacimeter:
 - In stacks associated to more than one oven, sequencing of the blowing.
 - Programme the start and end time of blowing, for a given stack, in the same civil hour, in order to avoid a delay in more than one hour average caused by the blowing.

In addition, indicate in the book of registries not only the blowings, but others events such as repairs of blowers, to help in the validation of the emission data.

STACK (number and unit label)	STACK DESCRIPTION	ESTIMATED DURATION	HOURS	EQUIPMENT	ANALYZER
(i.e.) 1-UV1 (stack 1 of vacuum unit 1)	Vacuum -1	45 min.	02:05-02:50	Ovens 12 y 13	Opacimeter
·					

The blowing programme can be reported using the next format:





6.1.2.Non channelled emissions (fugitive emissions):

 Description of the sources of fugitive emissions and identification of the substances that may be present in such emissions must be provided, mentioning as well as the existence of nearby villages.

As part of the information requested above this table must be completed:

	Emission source (storage area,)								
No.	Unit Label	Description	Pollutant						

- Estimation or calculation of fugitive emissions arising from the installation, expressed as a mass flow for each pollutant, describing the procedure of estimation / calculation used to obtain the quantities. If the estimate is made from real measurements, the relevant certificate and an analytical plan in which sampling points are defined must be attached.
- This emission points must be placed in the map of Annex 0.
- Note : International EFs (emission factors) are available.





Odour control and VOC emissions

VOC emissions

Annex IV must contain the Leak Detection and Repair (LDAR) program; based on the indications provided in Chapter 5 of the BAT Guide for oil refineries.

The basic contents of the LDAR¹⁴ are the following ones:

- a) Identifying Components
- b) Leak Definition
- c) Monitoring Components
- d) Repairing Components
- e) Record keeping

Using the standards EN 15446¹⁵ and EPA21¹⁶.

The points monitored must be placed in the map (Annex 0)

Odour control

• Additionally to the LDAR Programme, the applicant must include a monitoring programme for the odours and VOCs in the perimeter of the refinery.

The basic scope of the periodical odour-VOCs monitoring programme can be as follows:

• Select a representative number of points in the perimeter of the refinery (between 5 and 10).

• The methodology must be based in the use of diffusive samplers. *(i.e. bags, canisters, tubes, badges)*

¹⁴ It is necessary to remember that the scope of a LDAR programme is, typically, from 20.000 to 40.000 monitoring points. (i.e. Puertollano-Spain refinery implemented its LDAR with over 25.000 points) (the cost was approximately 100.000 € per year)

¹⁵ EN 15446:2008 'Fugitive and diffuse emissions of common concern to industry sectors -Measurement of fugitive emission of vapours generating from equipment and piping leaks'

¹⁶ EPA METHOD 21 "Determination of volatile organic compound leaks"





• Carry out measurements of concentrations of VOCs in this perimeter, through samplings of 24 hours, to be held weekly

• For the measurement of VOCs the analysis and sampling methodology to be used is established in the EN-13528-2¹⁷ and EN-13528-3¹⁸ standards, and for BTEX in addition to the above two, to the EN-14662-5¹⁹ standard.

• On the other hand, odour control can be based on the EN 13725 Standard "Determination of odour concentration by dynamic olfactometry" which defines the European standard defining olfactometry measurement methods or, alternatively, using a nasal organoleptic instrument, that directly measures and quantifies odour strength in the ambient air using the operating principle of mixing odourous ambient air with odour-free filtered air in discrete volume ratios. (see Chapter 5 of the BAT Guide for oil refineries)

6.2. Noise emissions to the surroundings of the installation:

- Include a description of the main sources:
 - Description of noise sources in the refinery, their locations and heights. It will include the indication of the data related to acoustic power of the different noise sources or, if not available, sound pressure levels, presence of an impulsive and tonal component, and, if necessary, the directionality of each source. In situations of uncertainty on project type or location of sound sources that will be installed, emission levels should be estimated by analogy with those from similar sources.

As part of the information requested above this table should be completed, considering particularly the flares:

¹⁷ EN-13528-2 Ambient air quality. Diffusive samplers for the determination of concentrations of gases and vapours. Requirements and test methods. Specific requirements and test methods

¹⁸ EN-13528-3 Ambient air quality. Diffusive samplers for the determination of concentrations of gases and vapours. Requirements and test methods. Guide to selection, use and maintenance

¹⁹ EN 14662-5 Ambient air quality - Standard method for measurement of benzene concentrations - Part 5: Diffusive sampling followed by solvent desorption and gas chromatography

PERMIT APPLICATION CONTENTS. OIL REFINERIES



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Unit (label)	Identification of noise sources	Description	Location	Height	Frequency	Sound Power or Sound Pressure





- Identification and description of receivers (eg hospitals, schools, homes, parks, etc.) present in the surrounding area, with details of their relevant characteristics in terms of noise (eg intended use, height, distance from the installation or activities planned, etc.)²⁰.

6.3. Wastewater discharges:

The applicant will include, in the map of the refinery (Annex 0 of the application), the different waste water flows specifying, particularly, the rain waters collection network and, if they exist, its intermediate storage points.

- Description of the Waste Water Flows: A summary list of flows (including process, sanitary and rain waters), supporting documentation should be included. For each of the flows the following information should be provided:
 - Industrial wastewaters: details of all emission sources of industrial waste waters²¹ and emissions points from them to the receiving medium (inland and sea surface water) or to the public sewage system with the industrial waste water (pre)treatment plant data should be provided.
 - Sanitary Waters: details of all emission sources of sanitary waste waters and emissions points from them to the sewage system with external or internal waste water treatment plant data should be provided.
 - Rainwater discharges: details of all emission sources of rainwater (rainwater drainage) and emissions points from them to the receiving media should be provided.
 - Discharges to sea: for installations discharging directly to the sea, they will have to complete the information requested in Annex of the su kirliliği kontrolü yönetmeliği idari usuller tebliği (Resmi Gazete Tarihi: 10.10.2009 Resmi Gazete Sayısı: 27372).
 - Water mass balance of the installation (amounts of water intakes and amounts discharged).

In addition, as part of the information requested above this table should be provided for existing discharges:

²⁰ The measurements shall fulfil the By-Law 25862, based in the Regulation of Assessment and Management of Environmental Noise (2002/49/EC). (see Chapter 5 of the Guide)

²¹In case of cooling systems (direct cooling, indirect cooling, open/close loops), description and supporting documentation (like the list of substances used in cooling waters in an existing installation, and heat discharge calculation sheets) should be also provided.





1. Data for the discharge								
Discharge name		code						
U.T.M. coordinates	X:		Y:					
Municipal/region name	code		Parcel No:					
2. Volume flow, amount and type of waste water for particular stream which is conducted on that discharge								
Kind of stream: industrial, sanitary and rainwater on that discharge								
Stream code		X1		X2	Х3		Х4	
Waste water type (industrial, sanitary, rainwater)								
Max. amount per day (m ³ /day)								
Max. annual amount (Hm ³ /year)								
actual annual amount (m ³)								
Type of discharging:								
Total area collecting rainwater (m ²)								
Destination of the discharge after the treatment ²²								

²² Please choose one: public sewage with WWTP (PSWWTP) ; inland surface water body (ISWB) ; other (O), in this last case please explain in detail.





- Requirements and technical conditions of the discharging points: Detailed description of the existing sampling points within the installation, for each of the wastewater flows. Besides, the following information about existing wastewater depuration systems shall be provided:
 - Industrial Waters: Detailed description of the industrial WWT plant or other depuration systems. For each industrial WWT plant the operational procedure should exist together with operational records. The operational procedures should include at least the following information:
 - WWT plant operator.
 - Information regarding substances which are used both in the industrial water lines which feed the WWTP, and during the different wastewater treatment stages.
 - Treatment techniques; Pollution reduction %.
 - Average emission value after (pre)treatment: Normal operation (Kg/tonnes product)/ Abnormal operation (start-up, etc).
 - WWT plant operational data (technology/process description, WWT plant efficiency).
 - Management of sludges (solid or liquid) after treatment.
 - Operational and maintenance procedure.
 - Procedure for the control together with monitoring system.
 - Corrective actions in case of accidents (incidents) together with start-ups and WWT plant interruptions.
 - Maintenance and preparation procedure of operational records.

As part of the information requested above this table should be completed:

	Treatment techniques of the industrial WWT ²⁴ :					
WWT operator ²³	Substance/par ameter	Average emission levels after treatment at normal condition, mg/l		WWT efficiency ²⁵ , %	Sludges (liq./sol.), kg	
WWT control status of monitoring system						
Continuous measurement Discontinuo			ous measurement (key parameters)			
рН			COD			
Т			Heavy metals			
Waterflow, m ³			other ²⁶			

²³ It can be the same operator as the one of the installation that discharges the wastewaters, or a different one, for example it may be a different operator in Organised Industrial Zones.

²⁴Examples: mechanical treatment, chemical treatment, biological treatment

²⁵ Specify the efficiency in % of reduction for: (i) COD if it is a physicochemical treatment, (ii) BOD if it is a biological treatment or Nitrogen and Phosphor if there is nitrification or denitrification

²⁶ Include at least all those which are established as compulsory for your kind of installation in the national legislation.





- Sanitary Waters: detailed description of the sanitary WWT plant and all techniques for pollution prevention should be described.
- Rainwaters: description of all the buffer measures implemented to contain rainwaters.
- Other discharges: detailed description of the decentralised or centralised (on-site or offsite) treatment facilities or other depuration systems and all techniques for pollution prevention should be described.
- Plan for Monitoring and Control: It will contain the following data: Emission point, pollutants, sampling, control and data collection, transmission and registration system. The plan may be in any case subject to the modifications considered relevant by the Competent Authority.

As part of the information requested above this table should be completed:

Discharging point	Pollutant/s	Monitoring and Control					
		No.sample	Internal/ External ²⁷	Frequency (hourly, daily)	Description	Reports	

Indicate the water quality standards that should have the water bodies that receive the discharges of treated wastewater, according to the applicable legislation.

Indicate as well the physical chemical and biological parameters of the receiving water bodies of the effluent from the LCP (upstream and downstream of the discharge point).

ASSESSMENT STUDY OF TOXICITY, PERSISTENCE AND BIOACCUMULATION OF EFFLUENTS

The applicant must specify if there exists some of the following techniques²⁸ and their scope:

- 1. Specific analyte measurement (e.g. Semi-Permeable Membrane Device (SPMD), caged mussels, large volume *in situ* sampling);
- 2. Other water and sediment quality parameters;
- 3. Tissue analysis using for example mussels and/or fish;
- 4. Solid phase extraction (SPE) techniques;

²⁷ Here by "internal" it is meant that the monitoring and control is done by the operator of the installation, and "external" means that this task is performed by an external company.

²⁸ See Chapter 5 of the Guide





- 5. Biomarkers;
- 6. Dilution studies using dyes and other markers

6.4. Waste:

Waste production:

- Waste characterization: Detailed description of the activities (related to the production processes or to other activities not related to production processes) where the hazardous and non-hazardous wastes are generated. Information related to classification, labelling and storage of waste shoulds be provided.
- Storage conditions: Description of key features of storage (area, height, type of floor, presence of isolating covers, spill prevention devices).

As part of the information requested above this kind of table should be completed:

Example of table:

Process or Unit Label	Waste description	EWR Code	Production (T/month or year)	Destination	
	Absorbents, filter materials (including the oil filters otherwise specified) wiping cloths, protective clothing contaminated by dangerous substances	15 02 02	/month /year	Landfill	
Maintenence operations	Volatile oily fly ash and dust from boiler	10 01 04	/month /year		
	Packages containing dangerous substances or contaminated by those	15 01 10	/month /year	Inertization	
	Other solvents and solvent mixes Aqueous washing liquids	14 06 03 12 03 01	/month /year	Recovery	

Waste management:





- Offsite transfer to authorised waste operators: identification of the transfer and shipment notification of hazardous and non-hazardous wastes should be provided.
- In-site treatment of waste: describe in detail treatment given to each waste, quantities treated. Include a detailed map (to be included in Annex 0 of this permit application) showing the areas related to the treatment given to each type of waste. Measures to mitigate the risks to human health and the environment when handling the waste should be provided.
 - Admission procedure for wastes: description of the procedure for admission of wastes should be provided including the way that the operator implements the following aspects²⁹:
 - 1. Check of the documentation (approval of the vehicle, monitoring and control document fill-in...).
 - 2. Weight and register of the load (weighing, date and time of arrival, waste origin, type of waste, waste vessel...).
 - 3. Visual inspection.
 - 4. Characterization and / or periodic sampling of the waste.
 - 5. Notification to the Competent Authority in the absence of waste acceptance.
 - Treatment operations: description of the treatment operations including the following aspect:
 - 1. A flow chart of treatment operations.
 - 2. The techniques³⁰ used for the treatment operations.
 - 3. The quantity of materials recovered.
 - 4. Any energy recovery (mode, use, quantity).
 - 5. Nominal capacity of the system (kg / h).
 - 6. Current capacity of the system (kg / h).
 - 7. Number of daily hours of operation.
 - 8. Number of days in a year.
 - Technical requirements for disposal: describe in a detailed manner the activities that will be carried out for the final disposal of the rejected materials resulting from the treatment operations.

- 24736 Regulations on control of solid wastes
- 26952 Oil waste control
- 26739 PCB-PCT waste control
- 25755 Regulation on Hazardous waste control
- 25569 Control of waste battery and accumulators

²⁹ Include the reports which have to be sent to the Competent Authority according to current Turkish legislation on waste management, such as the following:

³⁰ A comparison of the techniques used with respect to the BATs included in the BAT Conclusion documents approved by the European Commission should be provided.





 Plan for the minimization of waste: A detailed description of the plan prepared to minimize³¹ packaging waste generated in production processes. The plan may be in any case subject to the modifications considered relevant by the Competent Authority.

6.5 Soil and groundwater protection:

MONITORING PROGRAM

A monitoring programme will be included as Annex V of the permit application, divided into the following stages:

- Stage 1: Site investigation / characterization of the existing contamination;
- Stage 2: Monitoring;
- Stage 3: Remediation.

The contents of this program shall follow the indications about LDAR included in Chapter 5 of the BAT Guide for oil refineries.

6.6. Operation under not normal conditions:

- Description of the operation modes different from the normal operation (start-up and shut-down operations, leaks, malfunctions, momentary stoppages, definitive cessation of operations, etc) and of the situations which cause them.
- Expected emissions under those circumstances (pollutants and concentrations).
- Expected percentage of operation under those circumstances (hours/year).
- Special measures planned to be followed under those circumstances and goals to be achieved by taking those measures.
- Systems for the monitoring and control of parameters under those circumstances.
- Description of the operation under emergency situations.

³¹ Minimization means reducing the material amount of the packaging waste (quantitative prevention) and the harm that these materials can cause in the environment (qualitative prevention).





ANNEXES TO THE PROJECT REPORT

ANNEXES

Annex 0

Maps of the refinery.

- Units in the refinery. (labeled)
- Emission point sources. (referenced to labels)
- Diffuse emissions (referenced to labels).
- Rain water collection network (with intermediate storages, pumps, etc.)
- Points of Leak Detection and Repair (LDAR) Program.
- Air quality monitoring network.
- Points of waste storage and/or treatment.
- Site investigation of the Soil Monitoring Program.

Annex I

Material safety data sheet (MSDS) and product safety data sheet (PSDS)

Annex II

Atmospheric Dispersion Model

- Meteorological data.
- Emission sources with their heights and characteristics.

Annex III

Air Quality Network.

- Design of the Air Quality Network.
- Description of the Air Quality Network.

Annex IV

Leak Detection and Repair (LDAR) program

Annex V:

Soil Monitoring Program

- Stage 1: Site investigation / characterization of the existing contamination
- Stage 2: Monitoring
- Stage 3: Remediation.





Annex VI:

Environmental Monitoring and Enforcement Plan

- Assessment of ELVs compliance.
- Samplings and inspections frequencies.
- Frequency and systems to report to the Environmental Competent Authority.

Note: guidance on the contents of this Annex can be found in Section 5.6 of the BAT Guide for oil refineries.

Annex VII:

Summary of BATs for processing units.

- Applied Best Available Techniques (BATs)³²
- Planned BATs (with their expected implementation schedule)

³² As defined in the BAT Conclusion documents approved by the European Commission and, therefore, in the Turkish refineries guide.







OTHER DOCUMENTATION DIFFERENT FROM THE PROJECT REPORT

- i. Environmental Impact Assessment (EIA) Report according to the legislation on the environmental impact assessment to the Competent Authority and after its acceptance preparation of the EIA report and project presentation file(if applicable to the installation, taking into account if it is a new or existing installation). The report is the one mentioned in article 11 of the EIA By-Law 26939.
- ii. A report from the competent administration responsible of development plans and landscape planning in which the site for the installation is located, evidencing compatibility of the project with urban planning provisions. If the applicant applied for such report to that competent administration and no report is provided within 40 working days, that report shall be replaced by the applicant with a copy of the application for the report. In any case, if the urban report is negative, the Competent Authority will bring the permit procedure to an end.
- iii. A report from the Competent Authority on control of major-accident hazards involving dangerous substances, classifying the activity according to the legislation.
- iv. Identification of the information which the applicant deems to be confidential under the provisions in force. When assessing this point, the applicant should take into account that the application will be submitted to public information during 15 working days, plus the legislation applicable.
- v. Any other documentation evidencing compliance with the requirements under the applicable environmental legislation on obligatory security or insurance³³.
- vi. Any other documentation evidencing compliance with the requirements under the applicable environmental legislation.
- vii. Any other documents required by the Competent Authority.

³³ We should take care that this part is compatible with the final version of the By-Law.



ÍNDICE MEMORIA RESUMEN

1.- DESCRIPCIÓN Y ALCANCE DE LA ACTIVIDAD, INSTALACIONES, PROCESOS PRODUCTIVOS Y TIPO DE PRODUCTOS.

- 1.1. Introducción
- 1.2. Localización
- 1.3. Descripción del proceso
- 1.4. Productos elaborados
- 1.5. Consumos

2.- DESCRIPCIÓN DEL ENTORNO

- 2.1. Características geológicas, geográficas y climáticas.
- 2.2. Resumen histórico y situación social y económica
- 2.3. Situación social y económica

3.- REPERCUSIÓN AMBIENTAL DE LA ACTIVIDAD

- 3.1. Identificación de las acciones con impacto ambiental significativo
 - 3.1.1 Emisiones a la atmósfera
 - 3.1.2 Vertido de efluentes acuosos.
 - 3.1.3 Residuos
 - 3.1.4 Suelo
 - 3.1.5 Ruido

4.- CONTROL AMBIENTAL DE LA ACTIVIDAD

- 4.1. Emisiones a la atmósfera
- 4.2. Vertido
- 4.3. Residuos
- 4.4. Suelo

5.- MEJORES TÉCNICAS DISPONIBLES

- 5.1. Introducción a las MTD en el Sector del Refino del Petróleo
- 5.2. Herramientas de Gestión Ambiental Integrada
 - 5.2.1 Tecnología y estrategias
 - 5.2.2 Sistemas y herramientas de gestión ambiental integrada
 - 5.2.3 Apoyo a la gestión: Aplicaciones Informáticas
 - 5.2.4 Planificación y Control de la Producción
 - 5.2.5 Buena conservación
 - 5.2.6 Organización de personal
 - 5.2.7 Formación y entrenamiento
 - 5.2.8 Identificación y Evaluación de Riesgos de Accidentes Graves
 - 5.2.9 Actuaciones en caso de emergencia
 - 5.2.10 Control de la Explotación
 - 5.2.11 Seguimiento de Objetivos Fijados
 - 5.2.12 Auditoría y Revisión



ÍNDICE PROYECTO BÁSICO

0 INTRODUCCIÓN

0.1 Marco Legal

1 Datos básicos de la instalación

- 1.1 Empresa
- 1.2 Establecimiento

2 Descripción del entorno de ubicación

- 2.1 Características físicas del entorno.
 - 2.1.1 El espacio físico del entorno y la actividad industrial de la zona
 - 2.1.2 Características del suelo y del subsuelo
 - 2.1.3 Características climáticas del entorno
 - 2.1.4 Flora e inventario ambiental
 - 2.1.5 Fauna del entorno
- 2.2 Resumen de afecciones al medio.

3 Descripción del proceso productivo

- 3.1 Resumen del proceso productivo
 - 3.1.1 Diagramas de flujo de los procesos
 - 3.1.2 Ubicación de instalaciones y procesos en planta.
- 3.2 Identificación y descripción detallada por proceso
- 3.2.1 Combustibles:
- 3.2.2 Lubricantes:
- 3.2.3 Petroquímica:
- 3.2.4 Unidades auxiliares
- 3.2.5 Unidades ambientales
- 3.2.6 Balances de entradas y salidas.
- 3.2.7 Plano detallado de las instalaciones.
- 3.2.8 Capacidades de las instalaciones
- 3.2.9 Modos de funcionamiento
- 3.3 Descripción de las mejores técnicas y tecnologías adoptadas
 - 3.3.1 Técnicas de producción existentes:
 - 3.3.2 Tecnologías utilizadas:

4 Estudio de Entradas al proceso productivo

- 4.1 Materias primas
- 4.2 Productos químicos
- 4.3 Recursos Naturales
- 4.3.1 Energía térmica
- 4.3.2 Energía eléctrica
- 4.3.3 Recursos hídricos

5 Estudio de salidas e impactos ambientales

- 5.1 Productos intermedios y finales.
 - 5.1.1 Producción anual prevista.
 - 5.1.2 Sistemas de almacenamiento, acondicionamiento y expedición.
- 5.2 Emisiones a la atmósfera
 - 5.2.1 Estudio de emisiones canalizadas por foco.
 - 5.2.2 Estudio de emisiones difusas.
 - 5.2.3 Autocontrol de niveles de emisión e inmisión.
 - 5.2.4 Estudio de emisión de ruidos y vibraciones.
- 5.3 Vertidos al medio acuático
 - 5.3.1 Descripción de las instalaciones de tratamiento
 - 5.3.2 Caudal y concentraciones finales de vertido.
 - 5.3.3 Autocontrol de los niveles de vertido
- 5.4 Gestión de residuos
 - 5.4.1 Generación de residuos
 - 5.4.2 Sistema de recogida y almacenamiento
 - 5.4.3 Operaciones de gestión de residuos



- 5.4.4 Destino final de los residuos
- 5.4.5 Plan de Gestión de residuos
- 5.4.6 Gestión prevista para los residuos de la refinería
- 5.4.7 Registro y comunicación de datos.
- 5.5 Contaminación de suelos.
 - 5.5.1 Identificación de zonas de potencial contaminación.
 - 5.5.2 Descripción de medidas correctoras.
- 5.5.3 Operaciones para el control y mantenimiento.
- 5.6 Funcionamiento en condiciones distintas a las normales
 - 5.6.1 Paradas de Unidades:
 - 5.6.2 Puesta en marcha de unidades:
 - 5.6.3 Fallo de equipos importantes:

ANEXOS

- Anexo 1: Estudio sobre el entorno industrial de Puertollano.
- Anexo 2: Descripción de los factores socioeconómicos y demográficos de la comarca de Puertollano. Usos del Suelo. Estudio de los beneficios socioeconómicos de Repsol YPF para la comarca
- Anexo 3: Informe de síntesis de las actuaciones ambientales relacionadas con el subsuelo en el Complejo Industrial de Puertollano
- Anexo 4: Parámetros meteorológicos
- Anexo 5: Análisis de las afecciones al medio derivadas de la actividad de Repsol YPF
- Anexo 6: Plano detallado de las instalaciones
- Anexo 7: Plan de minimización de residuos, 2005.
- Anexo 8: Tablas consumo de productos químicos y otras materias
- Anexo 9: Fichas de Seguridad de los productos químicos utilizados
- Anexo 10: Almacenamiento de productos
- Anexo 11: Fichas de Seguridad de los productos finales
- Anexo 12: "Estudio de dispersión de gases. Cálculo de inmisiones en RVCAP
- Anexo 13: Análisis de la red de calidad ambiental de la localidad de Puertollano. Estimación de la participación de Repsol YPF en las concentraciones medidas en la red de calidad ambiental
- Anexo 14: Plano de ubicación de focos de emisión
- Anexo 15: Cálculo de emisión anual de contaminantes atmosféricos, según EPER
- Anexo 16: Cuadro resumen de emisiones foco a foco. Base de cálculo para estudio de dispersión.
- Anexo 17: Estimación de las emisiones de COVs difusas y modelización de su dispersión
- Anexo 18: Especificaciones de los analizadores de emisión y vertido
- Anexo 19: Caracterización de los efluentes del Complejo Industrial. Sistemas Indicadores de la calidad del medio receptor. Evolución de la calidad del medio receptor.
- Anexo 20: Parámetros de vertido
- Anexo 21: Declaraciones de Productores de Residuos Peligrosos y de Gestores de Residuos Peligrosos, 2005