

This form will report compliance with your permit as determined by an NRW officer

Site	Valero Refinery Pembrokeshire		Permit Ref	QP3033LW		
Operator/ Permit holder	Valero Energy Limited					
Date	2 June 2015		Time in	10.30	Out	16.00
What parts of the permit were assessed	See below					
Assessment	EPR - inspection	EPR Activity:	Installation	X	Waste Op	Water Discharge
Recipient's name/position	Neil White, Environmental Engineer, Valero Energy Limited					
Officers names	DMP Broom		Date issued	21/9/2015		

Section 1 - Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations. A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our [Compliance Classification Scheme](#) (CCS). CCS scores can be consolidated or suspended, where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your [local office](#).

Permit Conditions and Compliance Summary

Condition(s) breached

a) Permitted activities	1. Specified by permit	A	
b) Infrastructure	1. Engineering for prevention & control of pollution	N	
	2. Closure & decommissioning	N	
	3. Site drainage engineering (clean & foul)	N	
	4. Containment of stored materials	N	
	5. Plant and equipment	A	
c) General management	1. Staff competency/ training	N	
	2. Management system & operating procedures	A	
	3. Materials acceptance	N	
	4. Storage handling, labelling, segregation	N	
d) Incident management	1. Site security	N	
	2. Accident, emergency & incident planning	A	
e) Emissions	1. Air	A	
	2. Land & Groundwater	N	
	3. Surface water	N	
	4. Sewer	N	
	5. Waste	N	
f) Amenity	1. Odour	N	
	2. Noise	A	
	3. Dust/fibres/particulates	A	
	4. Pests, birds & scavengers	N	
	5. Deposits on road	N	
g) Monitoring and records, maintenance and reporting	1. Monitoring of emissions & environment	A	
	2. Records of activity, site diary, journal & events	A	
	3. Maintenance records	N	
	4. Reporting & notification	A	
h) Resource efficiency	1. Efficient use of raw materials	N	
	2. Energy	N	

KEY: C1, C2, C3, C4 = CCS breach category (* suspended scores are marked with an asterisk), A = Assessed or assessed in part (no evidence of non-compliance), N = Not assessed, NA = Not Applicable

Number of breaches recorded	-	Total compliance score (see section 5 for scoring scheme)	-
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If the Total No Breaches is greater than zero, then please see Section 3 for details of our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- the part(s) of the permit that were assessed (e.g. maintenance, training, combustion plant, etc)
- where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- any non-compliances identified
- any non-compliances with directly applicable legislation
- details of any multiple non-compliances
- information on the compliance score accrued inc. details of suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

Site description

Valero produce a variety of petroleum products from crude oil. The products range from liquid gases such as propane and butane through gasolines to gas oils and kerosenes through to heavier products such as fuel oils. To produce these products they use a number of unit processes such as distillation, fractionation, isomerisation, cracking and alkylation to produce products that meet the required specification. The site also removes sulphur from the raw materials by conversion to hydrogen sulphide and its subsequent conversion to solid sulphur. The aqueous effluent processed within the refinery is treated with oil separation and biological treatment to reduce the impact of the refinery on the receiving Haven waterway. Some gases and oils are burnt on site to produce power to operate the refinery.

Purpose of visit/assessment

To review the implications of the Industrial Emissions Directive on the refinery for their combustion plant from 2016 and for the refinery plant from 2018. Valero will need to invest in certain areas to comply with the IED Refinery Bat conclusions. There are a number of issues that Valero are seeking clarification.

Person(s) present (Office based)

VEL	Neil White	NRW	Mark Broom
	Clare James		
	Tom Blaxland (Nox bubble)		
	Tom Day (BAT conclusions)		

Combustion plant

Based on the monthly fuel usages in 2014 and using Article 40(2) or 40(3) where applicable the three CEMs stacks from the NERP 48, 49 and 52 are complaint for NO_x against these ELVs, mostly complaint for SO₂ (48 and 49) and not compliant based on the reported CEMS for SO₂ when on single fuelled on RFG and not complaint for particulates on NERP plants 48, 49 and 52. This was discussed on the phone with Valero on 7 May 2015. As a result Valero have reviewed their AST results and compared them with the CEMS results at the time of monitoring. They have found that in general the particulate CEMs results have been reading high which they attributed to the non-ideal location for the CEMS. However they got ESG to review the CEMs results and the AST run results. Previously the QAL2 results from the particulates results needed an extinction factor to obtain results. This factor was a multiplier to the CEMs results plus a number. This means that at low levels the number dominates the results. However if the extension factor is calculated to ensure that there is no number, the particulate results change by up to an order of magnitude. The AST results for the NERP plants when running on RFG only have been compliant which is contrast to the CEMs results using the original extinction factor. Valero have a choice to either run with the existing extension factor until their QAL2 test due in Q1 2016 or to bring the QAL2 tests early so that they have new extinction factors for 2016 onwards. Based on these findings Valero feel that they will be compliant with monthly particulate ELVs required under IED if they use new extinction factors. The issue over refinery fuel gas (RFG) being a 'residue' or not has still to be resolved between the Regulators, the refineries and the relevant Government(s).

Valero are looking at using the bubble limits (BATc 57 and 58) for NO_x and Sulphur dioxide for all their combustion plant and their FCCU and SRU (for SO₂ only). There is an issue of can all combustion plant (CEMed and Non CEMed) go into the bubble or can only CEMed plant go into the bubble. As Valero use an antimony catalyst in their FCCU which attracts an FCCU ELV contribution to the NO_x Bubble of 700mg/m³. They have assessed compliance for their FCCU and all combustion plant being in the bubble and they are complaint with this monthly bubble. Valero could consider assessing bubble compliance for NO_x with their FCCU and all their CEMed combustion plant. For the SO₂ bubble they used a combination of Cataid and/or DeSox to meet their current hourly bubble limit. For the BATc bubble 58 they will continue this approach for the management of their sulphur releases from their SRU, FCCU and combustion plant bubble compliance. There is a question over what happens to IED limits during turnaround scenarios – should the limits be suspended as these situations are not 'normal' operations.

Back in November 2014, all three environmental regulators at the meeting with UKPIA and their representatives outlined the view that compliance with Annex V of IED is based on three time frames – monthly, daily and annually. Furthermore for Article 40(3) to apply (1000mg/m³) then refinery residues must be burnt in those time frames. So to have a monthly mean for SO₂ ELV of 1000mg/m³ RFO must be burnt within that month, 1100mg/m³ as a daily mean then RFO must be burnt that day and for 2000mg/m³ for the 95% percentile of the hourly means in a year then RFO must be burnt within that year. This regulator's interpretation has not changed. However this issue may change if the interpretation of 'residue' is clarified.

IED Projects

FCCU particulates – this unit has passed its Annual Surveillance Test (AST) in April against BS EN 14181. They have seen some changes in performance and the use of an attrition resistant catalyst and the use of DeSox and Cataid will continue to be used to manage the sulphur releases but their use may in turn affect the particulates results. In the meantime Valero will monitor the FCCCU particulate results against this BATEAL.

VDU SWS Offgas project – Out of the 4500Tonnes of sulphur dioxide released by the site in 2015 around 2500 comes from the VDU off gas. By the end of 2015/early 2016 this project will route the VDU off gas to the SRU and reduce the site's total SO₂ releases significantly. Since the late 1990 the site's SO₂ has reduced from nearly 10000 T/year to around 2000T/year. Bearing in mind back in the mid to late 1990 there were there refineries operating and now that there is only one, there has been a major drop in sulphur releases and acid gas releases since that time.

Denitrification at the WWTP – The nitrogen levels are monitored at the T head on a daily composite sample. The performance of the treatment plant is monitored using three samples a day at the treatment plant. The composite sample is close to the BATAEL 19ppm vs 24 ppm. Valero are looking to adding denitrification to their treatment capability. Treatment plants often need phosphate and nitrogen additives to obtain good treatment. It may be worth considering the use of these additives and seeing if the nitrogen additions can be minimised and to use the nitrogen in the incoming effluent as the additive. This approach may help to reduce the nitrogen load into and out of the treatment process.

Bat Conclusions

There are 58 bat conclusion in the final published document for refining mineral oil and gas. Out of these 48 apply to the Pembroke refinery and 18 of these are 'soft' and the remainder (30) have BATEALS associated with them. The site is working its way through these each of these conclusions and they are using the format that Tata used in their response to the formal notice from Natural Resources Wales. The current status of this notice is on hold pending the residues decision above. A couple draft responses were discussed. The draft text echoes the Tata approach but it may undersell the work and approach that Valero carry out on site. Valero also need to ensure that they address each of the parts of each BAT conclusion to show how they have met or ensure an equivalent level of protection from these conclusions. For example the site segregates their effluent into surface water, that are collected in the storm pond, and the oily system, that passes through the separation plant and then into the WWTP. After treatment these two streams (treated and storm waters) are combined and discharged at the T head on the jetty.

When the information notices are issued they will likely include information about the combustion plant for assessment for the Annex V requirements ahead of a permit that will need to be issued ready for 1/1/2016 – the day after the NERP ends; information about compliance with the refining BAT conclusions; information that is relevant to the energy efficiency directive and lastly information relevant to the water frame work directive. The last two topics were included in an email sent on 1/5/2015.

BP Tank farm

Valero are looking at habitat enhancement in this area of their site that was owned by BP. Valero have asked to speak with us about their plans for habitat improvement in this area of their site. In the past they spoke with Mair Rees but now that the local NRW teams are place-based the planning application will come to the local team for substantial (or not) comment and interest. Valero are planning to improve the area of their site to make a wild flower type environment for bees etc. They have done some and seen some carder bees and now they are looking to extend their work to the BP tank farm.

Potential Biomass Project

Valero are in discussions with a biomass combustion plant provider. Part of this project may be sited on the old land farms. This plan could mean that the old land farms will need to be surrendered. The extent of this work for the surrender application needs to be discussed further with the groundwater/contaminated land team so that the required information can be supplied with any surrender application.

Improvement conditions

There are two improvement conditions that are outstanding –IC16 and IC26 about water testing and kerbing. Valero will send these in for assessment and close out.

Groundwater work

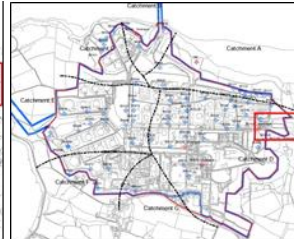
Valero have been working on a number of investigations into ground water issues across their site. They are located in three main areas – Fuel oil in the North west of the site, the releases On the north foreshore and an area centred around the waste water treatment plant.



Fuel oil tank farm



North east foreshore



Plot 8



WWTP area & BH 517

Fuel Oil Tank Farm Investigation [BH332]

Previously Valero had installed a temporary interceptor in this area. Since the temporary system has been installed no product has been found beneath the system. They are now planning to make this a permanent feature.

North East fore shore

Historically some discolouration has been seen on the cliff on the north east foreshore. Dissolved phase hydrocarbon was detected. A series of boreholes were installed on the edge of the field next to the foreshore cliff. Ground water has been brought back to refinery from treatment. The rate of abstraction is below the 20m³/day exemption threshold. This approach has stopped the discolouration of the cliff seepage.

Plot 8

Back in the mid 1980's light phase liquids were seen in this area of the site. A series of measures were installed to intercept and remediate this area of the site. Dissolved phase materials such as MTBE and BTX have been in the ground water in and around plot 8 however this petrol additive stopped being used in the refinery many years ago. The levels of MTBE appear to be increasing but the concentrations of BTX are decreasing. Valero will be drilling additional boreholes, they will carry out a program of data collection which will allow better modelling of the hydrogeology in this area.

WWTP plant area and BH 517

This contamination was first found in 2013 and was a significant step change seen in borehole 517. Although the Site Protection and Monitoring programme adopts a 12 month monitoring frequency. The report for 2013 uses 6 monthly but since 2014 and going forwards Valero (ERM) have used the SPMP annual ground water monitoring frequency. Valero are looking at what works need to be carried out to investigate the source(s) of this contamination. They will be using ERM to scope and then carry out this work over the next year or so. These results raise a key issue over formal notification as required by the EPR permit. This issue will be explored further in a subsequent inspection of Valero's systems for formal notification.

CDOIF

Progress on revising the ground water aspects of this guidance was discussed.

Conclusions

The implications of IED are slowly becoming clearer. It is good that Valero are working their way through the IED BAT conclusions and developing a range of plans to address issues as they are identified. The combustion plant compliance also looks like it is gradually coming to a close but the issue of residue is still outstanding. There are some improvement conditions that need to be submitted, assessed and closed out. It is good that Valero continue to deal with some historical contamination but how Valero report new or significant increases in ground water contamination and also other reportable events will be reviewed at a later date.

[END OF SECTION 2]

	EPR Compliance Assessment Report	Report ID: 5894
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This form will report non-compliance with your permit as determined by an NRW officer

Site	Valero Refinery Pembrokeshire	Permit	QP3033LW (as amended)
Operator/ Permit	Valero Energy Limited	Date	21/9/2015

Section 3- Enforcement Response **Only one of the boxes below should be ticked**

You must take immediate action to rectify any non-compliance and prevent repetition. Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.	
Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.	n/a
In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.	n/a
We will now consider what enforcement action is appropriate and notify you, referencing this form.	n/a

Section 4- Action(s)

Where a non - compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.

Criteria Ref.	CCS Category	Action Required/Advised	Due Date
See Section 1 above			
-	-	-	-

Section 5 - Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- advise on corrective actions verbally or in writing
- require you to take specific actions in writing
- issue a notice
- require you to review your procedures or management system
- change some of the conditions of your permit
- decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you.

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- ensure you comply with other legislative provisions which may apply.

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance which could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General Information

Data protection notice

The information on this form will be processed by Natural Resources Wales (NRW) to fulfill its regulatory and monitoring functions and to maintain the relevant public register(s). NRW may also use and/or disclose it in connection with:

- offering/providing you with its literature/services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law and taking any resulting action
- preventing breaches of environmental law
- assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Information Regulations request.

NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within twenty working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with the officer's line managers. If you wish to raise your dispute further through our official **Complaints** and **Commendations** procedure, phone our general enquiry number **0300 065 3000** (Mon to Fri **08.00–18.00**) and ask for the **Customer Contact team** or send an email to enquiries@naturalresourceswales.gov.uk If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on **(0845) 601 0987**.