

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

Site	Valero Refinery Pembrokeshire		Permit Ref	QP3033LW (as amended)		
Operator/ Permit holder	Valero Energy Limited					
Date	28 September 2015		Time in	09.30	Out	15.30
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 & J Walters		Date issued	18/12/2015		

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 discuss and review the Combustion plant regulation 60 notice with Valero

Person(s) present (Office based)

VEL	Neil White	NRW	Mark Broom
	Clare James		Jeremy Walters
	Tom Day		

Background

There are two main current issues for this site – implementing the large combustion plant part of the Industrial emissions directive (IED) and then the implementation of the BAT conclusions for this sector. IED has to be implemented by 1/1/2016 whereas the Refinery BAT conclusions (BATc) has until October 2018 before the BATc limits have to be met.

Regulation 60 Combustion Notice

Earlier in 2015 there was agreement between the regulators on how to apply limits for IED to the Refinery combustion plant however during August a difference of views between the three UK environmental regulators (EA, SEPA and NRW) became apparent. The EA will be applying a sulphur dioxide limit of 1000 mg/m³ for using refinery fuel gas (RFG) and the Scottish Regulator may be using 35 mg/m³ as their corresponding limit based on the limits contained in Annex V of the IED.

Due to these differences NRW sought independent legal advice on this issue. NRW asked for three options to be considered - to either adopt the EA approach or the Scottish one or to apply a 1000 mg/m³ limit if the gases from the process can be shown to be from residues and where not to impose a 35 mg/m³ limit value. The legal advice said that the gases from the first (atmospheric) distillation cannot be a residue but the gases that come from the processing of the vacuum distillation plant (known on site as the VDU) can be deemed to be a residue because the VDU feedstock is itself a residue of came from the atmospheric distillation. ~~This interpretation means that the VDU off-gases can be considered to be a residue because it came from a residue~~ Based on this legal view, Valero refinery stack 51 (A7/A8/A9 and A10) would attract a 1000 mg/m³ limit value whereas stacks 48 (A1 & A2) and 49 (A3 & A4) would get a 35 mg/m³ limit value for sulphur dioxide. The site hourly bubble limit and the annual site bubble limit will continue until the refinery Bat conclusion have to be imposed (October 2018). No decisions has been made within NRW on whether these two limits will continue after that date.

Valero think that they may not be able to route the VDU off gas, which is around 1T/day, to the sour gas system because of technical problems (see BATc 46). They will need to make their case in their Refineries BATc regulation 60 response(s). They are looking to use the Sulphur bubble (BATc 58) to remain compliant with these BATcs (46 and 36). Valero have the capability to use catalysts, such as desox, to manage the sulphur releases from the site and from the cracker unit in particular. The bubble may be limited to release points A5 (the FCCU) and A9 (the VDU heaters) rather than a full site bubble.

The table below summarises the situation for combustion plant at Valero Pembroke.

Stack	Release points	Thermal input of combustion plant	QAL situation	Annex V elvs (CEMs) compliant	Comments
1	A1 & A2	>100MWth	QAL2 in Oct 2010	Yes	QAL2 retest in Q4 this year - all spots compliant
6	A3 & A4	>100MWth	QAL2 in Oct 2010	Yes	QAL2 retest in Q4 this year but may not be back in time for 1/1/2016- all spots compliant
7	A5, A6 & A6A	<100MWth	-	N/A	Only A6A is an LCP under Annex V
8	A7, A8, A9 & A10	>100MWth	-	Yes	-
9	A11, A12 & A13	<100MWth	-	N/A	Only A12 is an LCP under Annex V *
10	A19	<100MWth	-	N/A	No LCPs under Annex V

* There are two gas fired heaters that are capped to less than 15MWth input which are tracked on a daily basis.

In the event of a delayed QAL2 report and delay in the application of new factors to the CEMS (i.e. A3 and A4). If an exceedance is found and reported when it is found using the new CEMS factors on these release points then Valero will be compliant with their permit reporting requirements.

The VDU sour water stripper off gas project will start to come on stream early in 2016. To cover the commissioning of this system, Valero will need to include this unit's start up/shut down criteria in their Combustion Regulation 60 response.

IED related issues

The EA have been looking at the site annual bubble performances of some of the UK refineries using the sulphur dioxide releases (kg/Tonnes of materials produced). Their initial analysis shows that the east coast refineries have a lower ratio than most in the UK. However their work is based on name plate throughput not actual for which each refinery should provide to their regulator in the 'Performance1' annual return. Valero estimate that their annual sulphur releases will be around 5000Tonnes for 2015 against an annual release of more than 12000 Tonnes back in the late 1980s.

There was some discussions over the BAT bubble approach which are described in BATc 57 and 58. The EA are looking to have fixed bubble in that any changes to the bubble will need variation. NRW are considering an 'approved bubble management plan' (ABMP) whereby any changes to the plan have to be submitted and approved by exchange of correspondence and without the need for variations. Regulator discussions mean that discontinuous combustion plant (i.e. stacks 50 and 52) may not enter an ABMP.

Other issues

Ground water updates

Following on from the previous CAR form, Valero had some further updates on some of their work on ground water beneath their site.

Fuel Oil tank farm investigation [BH332]

Since 1997, free phase hydrocarbon has been observed in BH332 and since 2012 it has been seen in the down gradient steam (SW10) and a temporary interceptor was installed in the steam. A program of investigation and intrusive works up gradient of BH332 and SW10. The scope includes collection and laboratory analysis of soil, surface water and groundwater sampling. A remedial options appraisal has been completed and Valero are planning to install a permanent interceptor in the stream down gradient of BH332.

Northeast foreshore seepages

In August 1995, a seepage of free phase hydrocarbon was identified on the foreshore about 150 m northeast of the refinery fence line. Following an investigation and around 1997 a voluntary risk based Monitored Natural Attenuation (MNA) was started. Further investigative works were undertaken in 2009 including the drilling of additional boreholes, installing of abstraction wells and completing a quantitative risk assessment and a remedial options appraisal.

Currently only dissolved phase hydrocarbon constituents have been found in the seepage water together with an associated ferruginous (ochre) precipitate. In 2014 a temporary hydraulic containment system was installed with the abstracted water being pumped back to the refinery for treatment. The ferruginous discolouration by the seepage on the foreshore may not be affected by this remedial work.

Plot 8

Free phase hydrocarbons were first identified in the lot 8 area in 1984. A series of intrusive investigations were undertaken including drilling boreholes and installing wells with a number of free phase management and interception systems. Some horizontal wells were installed, which are currently not in use, a pumped free phase recovery system, which is also not in use, and a passive interception trench was installed. In 2015 a strategic review of Plot 8 was carried out which concluded that the free phase within Plot 8 is relatively immobile and it has decreased significantly in extent over the monitoring period.

Dissolved phase data within Plot 8 shows the presence of BTEX, MTBE and TPH however only MTBE has been found east of Plot 8. NB MTBE was last used in the refinery back before 2001.

A program of boreholes drilling will be carried out between the existing wells and Martin's Haven to investigate the potential extent of MTBE and to provide further data for the modelling of the contaminants in this area.

Waste Water treatment plant (WWTP) area and BH517

BH517 was installed in 2008 and it now forms part of Valero's site protection and monitoring program (SPMP). When BH517 was being drilled strong hydrocarbon odours and visible oils were found in the drill cuttings. Increasing thickness of free phase hydrocarbon has been seen since 2011.

Two free phase seepages have been found up gradient of BH517 and the WWTP. Intrusive investigation works have been carried out including trial pits and installing monitoring wells. Investigations are on-going and the results of which will be reported to NRW in due course.

Charging

Valero have has problems with the EPR invoices. Ideally these need to be emailed directly to their head office at Valero in Saint Antonio who will arrange payment. Currently the invoices are being sent out and they end up at the refinery after some delays. If they were sent directly to the States by email then payment would be faster and easier without the need to chase Valero for payment. Valero need to feed these comments back to the NRW ideally through the payments team.

Soot blowing

The boilers on the FCCU need to be blown free of soot to maximise their efficiency. Valero had planned to automate this activity over the summer period but there were problems commissioning this system. Valero will inform NRW when this commissioning work will restart.


SRUs

A series of inspections of the SRUs and ARUs is needed. Train 2 will be inspected first during which time the acid gas recovery will not be normal operations. Earlier in 2015 (see email dated 23/3/2015) NRW said that the published refinery BAT conclusion (7) does accept that there are times when sulphur recovery units cannot operate and that there will be higher levels than usual in terms of fuel gas and refinery performance. Natural Resources Wales agreed with Valero in that the maintenance of the SRU Incinerators is not normal operation and the refinery fuel gas limit can be suspended in these circumstances. Furthermore if this situation were to happen NRW expected Valero to notify this event but you will need to say that the sulphur in fuel gas limit (Condition 2.3.2 and Schedule 3.1 RFG Limit) has been temporarily suspended due to abnormal operation.

Conclusions and further actions required

A useful meeting to clarify the positions on refinery fuel gas and how NRW is looking to impose Annex V complaint limits on the various Valero Pembroke combustion plant. NRW committed to reviewing the draft responses before submission and to delay issuing the BATC Regulation 60 Notice until after Valero have submitted their combustion responses. It was clear that Valero are working at their BATc responses ahead of any formal notice from NRW.

[END OF SECTION 2]

	EPR Compliance Assessment Report	Report ID: 6021
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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	18/12/2015

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			
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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**.