

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

Site	Barry Silicon Installation	Permit Ref	KP3734SH
Operator/Permit holder	Navigator Terminals Windmill Limited		
Regime	Installations		
Date of assessment	15/05/2018	Time in	10:00
		Out	16:00
Assessment type	Report/Data Review		
Parts of the permit assessed	EMS and SPMP		
Lead officer's name	Kemp, Andi		
Accompanied by			
Recipient's name/position	Andy Jackson/ Terminal Manager	Date issued	05/03/2019

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). 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	CCS Category	Condition(s) breached
A1 - Specified by permit	A	
B1 - Infrastructure - Engineering for prevention and control of emissions	A	
B3 - Infrastructure - Site drainage engineering (clean and foul)	A	
B4 - Infrastructure - Containment of stored materials	A	
C2 - General Management - Management system and operating procedures	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.

A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,

O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0
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If the Number of breaches recorded is greater than zero, please see Section 3 for 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 (eg. 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 advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

Compliance Assessment February 2019: Navigator Windmill Terminal (KP3734SH)

Purpose of compliance assessment:

- Follow up actions from Accident Management and LDAR Inspection (May 2017), CAR1 Oct. 2017 – rec'd Nov. 2017
- Routine lagoon sample submissions – permit condition: 2.2.8.1
- Annual fugitive emissions review – permit condition: 4.1.4
- Annual performance parameters (mass releases, energy, waste) – various conditions related to energy, waste and monitoring
- Correspondence with regard to pipeline security
- Correspondence with regard to a waste query
- Inspection: May 15th 2018 – EMS, SPMP

Follow up actions from Accident Management and LDAR Inspection (May 2017), CAR1 Oct. 2017 – rec'd Nov. 2017

The operator submitted responses to two recommendations and two actions on 7th Nov. 2017 – these were briefly discussed in May 2018.

Recommendation 1 concerned fuel leaks from road tankers – NRW accepts that the site benefits from a sealed drainage system with concrete in good repair. Drivers and site operatives are trained and deemed competent and various checklists and work procedures exist, e.g. Navigator Driver Declaration Form.

Recommendation 2 concerned severity and duration of harm to environmental receptors from sub COMAH accidents, spills, releases. NRW accepts that in preparing the COMAH safety report, Navigator would have considered extent, severity and duration of harm and events that are below the thresholds for MATTEs, do not go forward for further assessment under COMAH. Sub COMAH events are risk assessed (as covered in the Oct. 2017 CAR1) and a refined version of the Sub MATTE Event Assessment spreadsheet was submitted to NRW on 30th May 2018.

Action 1 Concerned justification of the frequencies used for vehicle fuel leaks / spills, pump seal / flange failures and small release at berth, events from the sub COMAH Event Assessment. The operator has submitted a comprehensive response and has qualified the statements made by referring to failure rate data (FRED database) and the number of components on plant – the end result is that the event frequencies in the sub COMAH Event Assessment are conservative compared to the frequency calculated in the response of 7th Nov. 2017. **Action Closed.**

As mentioned above, the sub COMAH Event Assessment has been refined by adding a *Frequency Justification* column – this adds additional information for the reader and helps them understand the derivation of the overall risk assessment output. This document complements the accident management plan, which was assessed in a previous CAR1 – and it was a recommendation in that previous CAR1 to assess sub COMAH events.

Action 2 Came out of assessing the LDAR monitoring conducted in May 2017 and requested the operator to confirm several points and add any relevant additional information to their LDAR Screening procedure, document: NTW-ENG-PROC-0042. The operator has supplied a refined procedure and submitted answers to the queries raised. NRW accepts this response. **Action Closed.**

In a letter dated 17th Nov. 2017, the operator, after discussions with NRW, proposes to move from 4 monitoring rounds, per annum, using the FID for methanol under the LDAR, to 2 rounds per annum. This is accepted, based on permit condition 4.1.2.1 requiring reporting of parameters in Table 2, Schedule 2, with calculation method to be approved by NRW.

Routine lagoon sample submissions – permit condition: 2.2.8.1

It should be noted that the sampling determinands: pH (not less than 6 or greater than 10), suspended solids (50 mg/l), BOD (20 mg/l) and mineral oil (5 mg/l), carried over from the former discharge consent are incorporated into the permit by condition 2.1.1 and Table 2.1.1 as Operating Techniques from the permit application.

CAR1 forms from 2016 made comments about the sampling and analysis of the lagoons and the sampling procedure was assessed. In July 2018 AJ (Navigator) raised queries about the sampling, which is now carried out by Dow Silicones (pH and suspended solids, but not BOD and mineral oil?) and previously the regulator also raised queries about sample custody: sample labelling, storage conditions, preservation, length of time from sample to analysis etc. Any analytical data required by the regulator should come from laboratories that are accredited to the MCerts standard for the relevant parameter and medium.

Recommendation 1 Navigator Feb. 2019: In line with the email sent to AJ by AK (NRW), 3rd July 2018, the monitoring methods need to be assessed more rigorously and on a risk basis decide on any exemptions to MCerts and possible change in analysis or parameters.

Recent sampling has been for methanol, TMS, pH, SS and oil – visual. This differs from that incorporated into the permit, but reflects better the substances stored.

Action 1 Navigator Windmill February 2019: Co-ordinate with the regulator, Navigator and Dow Silicones in order to arrange a brief assessment of the sample custody and transport and subsequent analysis at Dow on site laboratory. This assessment should include:

- Timings of sampling, sample pick up and transport to lab.
- Sample handling and storage and identification.
- Analytical techniques and deriving results.

Due: All parties to agree date by: **30th April 2019**

A variety of lagoon sampling results from late 2016 – Jan. 2019 have been looked at. None of them exceed any limits or are present in any concentrations to be of concern.

Annual fugitive emissions review – permit condition: 4.1.4

Two years submissions are assessed here – 2017 and 2018. The key points here (and some of this was covered by assessing the LDAR and methanol tank monitoring) are:

- 2017 estimated methanol loss = 34 kg; 2018 = 92 kg – this is not regarded as significant

- 2017 one flange recorded at 1900 ppm methanol loss – retorquing of flange carried out; 2018 minor leak on another flange, fixed and retested on next round and found not detectable, along with the flange from 2017 not showing as leaking on subsequent rounds.
- Navigator have instigated a programme to replace methanol tank floating rook seals as these are nearing the end of their lives.

The rest of the products are not appreciably volatile and as such are fixed rook tanks with a nitrogen blanket.

Action 2 Navigator Windmill February 2019: Navigator to confirm if there is a pressure related nitrogen flow into the cyclics tanks as the stock is drawn off. **Due: 31st March 2019**

Fugitive releases to water are not considered to be a risk, due to storage processes, bunds, tertiary containment, lagoon, shut off valves and site layout.

Annual performance parameters (mass releases, energy, waste) – various conditions related to energy, waste and monitoring

Three years annual reporting as stipulated in the permit (conditions: 4.1.2.1, 4.1.2.2, 4.1.2.3) for waste produced, electricity and other fuel usage and mass releases, for years 2016, 2017 and 2018.

With regard to waste, there is no particular trend observed. The majority of the waste is non hazardous waste from the site cess pit emptying. Hazardous waste is very low or zero for some years. Some waste was sent to Dow Silicones for recovery, but in fact was disposed of by Dow. Navigator now handle this waste (product samples and tank washes) and as of 2018 record this figure as waste disposed of.

Energy use, mostly electricity from adjacent CHP plant and natural gas, are fairly stable, again with no trends. Electricity has decreased slightly for 2017 and 2018 and this is put down to renewed trace heating on main transfer lines.

For mass emissions lost, D4 cyclics account for the vast majority of mass lost (2351.83 kg – 2018). The amount of tanks in service and tank movements (more displacement) influence the losses, which are derived, for the cyclics, by estimation using empirical methods (gas laws, Raoult's law and vapour pressure). Methanol losses are estimated from the average readings from the LDAR FID surveys.

Fugitive emission identification, measurement and control have been assessed separately. The conclusion

at the moment is that the losses are low for the materials handled and tank movements – based on cost of product lost versus stock held. Adequate controls are in place and are maintained through management of maintenance etc. The estimation techniques for the cyclics is accepted and the FID surveys and estimation of methanol losses have also been assessed as adequate.

Correspondence with regard to pipeline security

An incident of pipeline vandalism to one of the other Barry Chemical Complex operators effluent pipeline was discussed in the local CIA meetings. For Navigator, either the pipelines are surrounded by fencing or elevated to 6 m. The only place where these two precautions are not in place, is within the Dow Silicones installation – that site has its own security arrangements. The operator walks the lines on a routine basis. This is also addressed in the COMAH Safety Report.

Correspondence with regard to a waste query

As mentioned in the assessment of waste, Navigator now handle the waste that used to go to Dow Silicones for recovery. During a routine audit of the management system, it was discovered that Dow were actually disposing of the waste, not recovering it. This meant that figures recorded by Navigator were lower (for disposed of waste) than actual – this has now been rectified as of 2018 data.

AK sent an email to AJ covering some salient points with regard to waste management and handling.

Inspection: May 15th 2018 – EMS, SPMP

The purpose of this inspection was to assess some elements of the site environmental management system (EMS) and how it is implemented and examine evidence around pollution prevention infrastructure, in this inspection, bunds, drains and interceptors. An additional item was also discussed – this was the fire fighting capabilities of the site and specifically the testing of the fire water delivery pumps.

In terms of an EMS, Navigator Terminals has a company wide accredited management system. NRW accepts this based on the fact that the terminals carry out essentially the same activities: bulk tank storage, movements between tanks, offload from ship, off load to tanker, pipeline transfer to and from customer sites. The main elements of an EMS looked at during the inspection were:

- Navigator Terminals UK Policy – Safety, Health, Environment and Quality Policy Statement
- Process safety improvements 2018
- SHEQ briefing notes – 10th May 2018 – this document will not be put on the Public Register

The SHEQ Policy was dated 10th May 2017 and was signed by the then current senior management: M.D. and Chairman. The main points from this policy are: a drive for continual improvement; use of risk assessment and focus on asset integrity; safe handling of substances; provision of information, training and supervision; comply with all legal requirements as a minimum; engage staff; monitor performance; review incidents and share findings. These are typical policy aspirations and the test is to assess the effectiveness on the ground. NRW has seen evidence by way of discussions with staff and observing procedures, that suggest the broad policy aims have been implemented to a site and individual staff member level.

The 2018 process safety, quality and compliance improvements are available across the estate and for individual terminals. Some of the key items raised were: continue monitoring of historic ground contamination; installation of double mechanical seals on methanol pumps; upgrade SIL2 rated methanol tank overfill protection; SIL1 upgrade of methanol pumps; implement new stock management system. The majority of items focussed on process safety and that is to be expected when holding large inventories of dangerous substances.

The SHEQ briefing note (May 2018), is a detailed look across the whole organisation, reviewing individual site progress with open actions, recent incidents, near misses etc. NRW will not comment on any incidents relating to sites other than the Windmill Terminal. However this document does serve to illustrate how the overall management system (reviews, audits, improvements, leading PS indicators, communication, continual improvements, compliance etc.) is embedded within the organisation and procedures. For the Windmill Terminal a minor incident of a pressure relief valve lifting was alerted by the low pressure sensor due to venting to atmosphere. This resulted in the identification of inactive trace heating lines (frozen tank contents caused the valves to foul), which have since been repaired.

Action 3 Navigator Windmill February 2019: *Operator to explain the exact mechanism of frozen product leading to relief valve lifting and why the inactive trace heating didn't show up on an instrumentation panel. Due: 30th April 2019*

An extension of the overall management system are the procedures the site use to prevent pollution of the environment. To assess this aspect of EMS implementation, the regulator made a visual inspection of bunds, the interceptor location, drainage integrity and conducted a discussion about equipment design and maintenance. To aid the regulator the operator submitted the following documents:

- Inspection of Interceptors procedure

- Interceptor design drawing
- Bund Inspections procedure
- Screen shot of computer based maintenance inspection register / planner
- CCTV drainage survey April 2016

The general arrangement at this terminal is (taken from the Application Site Report URS Jul. 2005):

- All tanks are in bunds, which are solid concrete
- All bunds have a sump, which is in permanent shut off position – unless manually opened
- Methanol bund sump will drain to site surface water lagoon
- Cyclic and linear fluids sump drain to an interceptor before draining to site surface water lagoon
- Tanker loading area drains to either of two interceptors, then to the surface water lagoon
- The surface water lagoon is a concrete construct with outfall permanently locked closed, until successful analysis of contents, then permissible discharge into the Cadoxton
- The diesel for the generator is stored in a tank in a concrete floored building, which drains to the site sewerage system

The bunds are sized to take 110% of the largest tank contents. The visual inspection revealed the bunds to be an appropriate design (minimal joints, no masonry blocks, some well engineered bund wall pipe penetrations) and in a good condition, with some evidence of recent repairs. The walls, corners and floors were in good condition. The sumps were solid concrete and the valves were locked in the closed position. A pallet of firefighting foam was stored nearby.

Action 3 Navigator Windmill February 2019: *Operator to confirm if the bund contents are sized for 110% of largest tank or 25% of total tank contents, whichever is the greater. Due: 30th April 2019*

Action 4 Navigator Windmill February 2019: *Operator to confirm if the firefighting foam is checked to see*

if it is still useable and in date. Due: 30th April 2019

The interceptor (believe this is the cyclics interceptor between the two tank farms) was installed in 1998 and the operator retrieved the engineering drawing for this interceptor. The basic mechanism is a cylindrical tank containing weirs and two tilted oil coalescing plates. The vessel is made of polyurethane coated steel, suitable for underground installation and for operation at ambient conditions, to handle water and immiscible organics. The design specification has been signed by the installer and is based on the DIN 1999 Installations for the separation of light liquids standard.

The operator inspects the interceptor(s) under work procedure: NTW-OPS-PROC-0017, issue 2. The procedure is really a health and safety procedure, but it does state that the purpose is to identify product contamination – this would indicate lost product from primary containment, through the bund sump and into the interceptor. When the bund sumps are drained to the interceptor any contamination will build up over time and it is assumed this procedure is aimed at periodically removing contamination from the contents and refilling with water.

Action 5 Navigator Windmill February 2019: *Operator to confirm if the other two interceptors near the tanker loading area, also have design specification documents, inspection regime and same operating mode. Due: 30th April 2019*

The bunds themselves are also checked using procedure: NTW-OPS-CHEC-0013. This checklist also acts as the record of inspection – the actual inspection job being programmed into the computerised maintenance system. The record inspected was signed by an employee on 10th April 2018 and recorded no defects, just a minor comment relating to weeds growing from floor seal of tanks 107 and 109. The checklist prompts the operative to, amongst other items, check for level bund walls, collision bollards, gaps in walls, joint condition, pipe penetrations, floor integrity, presence of combustible materials, drain valves etc.

Even though a detailed inspection of the assets on the planned preventative maintenance system was not made a screen shot was supplied showing inspection jobs for bund inspections. What was not looked at was if any equipment is flagged as critical environmental equipment (presumably all tanks, bunds, lagoon, drainage and valves are) and at what intervals the assets are inspected and to what standard / guidance, e.g. EMMUA and what happens to jobs that are not completed on time. This can be done on another inspection.

The operator also supplied evidence of a CCTV drainage survey from 2016. The drainage survey shows a number of defects, structural and operational, including two items ranked as 5 – Best practice suggests this pipe is at immediate risk of backing up / causing flooding.

Recommendation 1 Navigator Windmill February 2019: *To complement this survey, the areas that have been surveyed should be recorded on a site drainage plan, so any abandoned areas or areas not surveyed and damaged areas, can be seen immediately in relation to the site layout.*

Action 6 Navigator Windmill February 2019: *Operator to confirm what repairs have been made since the*

survey in relation to the defects highlighted. Due: 30th April 2019

Overall it appears that the drainage system is in a reasonable condition, but there is evidence of poor installation with some joints and junctions and build up of debris – possibly introduced during installation.

The last item assessed in this report is the Fire fighting capability fire pump test. This procedure is for checking the fire pumps periodically, so that when used in anger to fight a fire, they perform as expected. The procedure uses fresh water from tank TK301, although dock or river water can also be used – with relevant permissions. The flow rates and pressure and time required to clear the line of water has been worked out and the actual test readings are recorded in the Appendices of the procedure. This should reduce any chances of pump failure on demand.

END

EPR Compliance Assessment Report

**Report ID:
CAR_NRW0034779**

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

Site	Barry Silicon Installation	Permit Ref	KP3734SH
Operator/Permit holder	Navigator Terminals Windmill Limited	Date	15/05/2018

Section 3 – Enforcement Response

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.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

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 verbally or 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 that 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 the Natural Resources Wales (NRW) to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s). The 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 (eg. 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
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

The 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

The 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 fifteen 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 officer's line managers using the informal appeals procedure. 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 607 0987.

Welsh Language

If you would like this form in Welsh please contact your Regulatory Officer.