

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

Site	Newport Chemical Complex	Permit Ref	BR97151B		
Operator/Permit holder	Solutia UK Ltd				
Regime	Installations				
Date of assessment	10/12/2018 - 29/03/2019	Time in	09:00	Out	13:00
Assessment type	Report/Data Review				
Parts of the permit assessed	Infrastructure, emissions, ICs				
Lead officer's name	Kemp, Andi				
Accompanied by					
Recipient's name/position	Steve Thomas/ Environmental Specialist	Date issued	29/03/2019		

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	
C2 - General Management - Management system and operating procedures	C3	2.3.1(a)
E1 - Emissions - Air	C3	3.1.2
E3 - Emissions - Surface water	C3	3.1.2
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	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	3	Total compliance score (see section 5 for scoring scheme)	12
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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 Eastman Chemicals Newport (EPR/BR9715IB): Mar. 2019

The purpose of this Compliance Assessment Report form (CAR1) is to cover the following:

- Routine inspections
- Previous actions
- Scheduled notifications – various
- Routine monitoring returns – Jul 2017 – Dec. 2018
- Annual performance parameters and activities, EMS and fugitive emissions, waste and water review
- IC33 update and progress
- Permit variation

Note: a draft version was sent to the operator on Friday 22nd March 2019. Comments were received from the operator on Thursday 28th March 2019 – these comments are indicated by bold text in italics.

Routine Inspections

A number of routine inspections took place throughout 2018: 14th Feb. 2018, 17th Apr. 2018, 10th May 2018, 26th Jul. 2018 and 10th Dec. 2018. Predominantly the inspections have followed on from general site progress update meetings and looked at variously: spill kit and fire tender equipment, secondary containment of stored materials, temporary storage of Chinese HEDP ISO tankers, areas where notified incidents took place, Therminols process and associated interceptor, surface water drainage and effluent treatment plant, emission points and control room. As such some elements that were discussed or assessed during the inspections may be covered under other headings, such as *Previous Actions*, *Scheduled Notifications*.

Most of the regulatory activities conducted in 2018 have been around progressing the permit variation, nitrogen dioxide (NO_x) issues with regard to TH3 pyrolysis furnaces, NO_x levels post gas turbine CHP refit and progress with IC33 (Pentachlorophenol (PCP) contamination).

Temporary storage of (amongst other things) Intermediate Bulk Containers (IBCs) containing rework, waste and raw materials and the secondary containment infrastructure, has been included in previous CAR1 forms (e.g. 15th Sep. 2017). Whilst it appears that the majority of toxic and / or aquatic toxicity substances now benefit from either newly engineered secondary containment or areas that have had minor repairs, the operator acknowledges that, due to the age of the site, there are areas that need further repair in order to protect soil, groundwater and surface water from pollution. The operator has amended procedures so that containers are labelled, dispense valves have end caps fitted and are directed within the secondary containment and material is only stored in the designated areas. Discussion also took place on the reclassification under CLP of the T66 Therminols product and where this is stored and what secondary and tertiary containment these storage areas benefit from. This will be a topic of future inspections.

Notwithstanding this, there is an issue with third parties storing containers in areas of the site that are not engineered to an adequate standard. For example, drum storage in the north east part of the site adjacent to an unfinished repair, where the containment was not preferentially sloping away from surface water drains and an obvious risk to the exposed repair. The critical features of a secondary containment system are:

- The floor, sills and kerbs are impermeable and joins are sealed.
- The entrance to the storage area should either slope away to a sump or a rollover type kerb is built.
- Containment should ideally be 110% of the largest container / tank or 25% of the total volume, whichever is greater, however when many IBCs or drums are stored these criteria may not be realistic.
- If the scenario is many individual containers, then containment capacity needs to factor in not just the loss of containment of one or two containers, but also scenarios such as fires and loss of many containers – so containment is based on the risk of the stored materials.
- Appropriate segregation and storage practices (no more than two stacked high, fire break distances etc.) should be implemented.

Action 1 Eastman 20th Mar. 2019: *The operator is to liaise with third parties about storage within the overall permitted area and ensure Eastman standards are adhered to. Secondly, the operator is to only store containers for any duration on areas benefitting from engineered secondary containment. Eastman to write in response to this action, including:*

- *Evidence that third parties are aware of Eastman's secondary containment pollution prevention procedures.*
- *That the site currently has sufficient capacity of engineered secondary containment.*
- *If not, a timed proposal for amending procedures or improving infrastructure or both.*
- *To include T66 storage proposals.*

Due: 31st May 2019

A particular aspect of the drainage infrastructure that was looked at is the interceptor serving the TH3 process area. This is part of the site that has recently been constructed as part of the TH3 expansion and

as such best practice should be evident. The interceptor is there to protect surface water drains and the effluent plant from a catastrophic loss of benzene or biphenyl. It is equipped with a level alarm and has an inert nitrogen blanket. This interceptor has a detailed design drawing and from these records it is possible to check if it has been sized accordingly – based on potential volumes lost and rainfall catchment surface area, i.e. retention time of standing water in the interceptor. It drains to the surface water system (which all drains to the effluent lagoons) to the north on 2nd Street.

Continuing the assessment of aspects related to loss of containment and other incidents, discussion took place about spill kits being proximate to storage areas, including of a temporary nature e.g. AES storage next to repair hole in concrete (AK email 31st Dec. 2018). AK (NRW) also requested a list of equipment that is on the fire appliance and within the site fire station. ST (Eastman) replied (email 23rd Aug. 2018) and the list includes absorbent pads, seals, Dammit paste, disposal bags, mini and large absorbent rolls. It is assumed that the absorbent rolls are booms.

Recommendation 1 Eastman 20th Mar. 2019: *Consider “pop up pools” and over drums to complement the equipment available.*

Another area inspected was the site where the operator intended to store ISO tankers of Chinese HEDP, which would be fed into a CaCl₂ tank – although not while it contains calcium chloride. This situation has arisen out of customer requirements to use this Chinese HEDP and Eastman are tolling for Italmatch who are driving this. A site inspection and discussion with relevant production staff took place on the 10th May 2018 and AK sent an advice email (11th May 2018) and ST responded with the work instructions, CaCl₂ P&ID and D2010 MSDS, which contains the risk phrases for HEDP (11th May 2018). Further to this ST emailed (15th June 2018) to indicate that the temporary storage procedure would be initiated the following week – although with lead time to first delivery 4 – 6 weeks hence.

NRWs main concerns with this temporary arrangement were:

- repeated use of a temporary procedure that may not have had appropriate up to date work instructions
- ISO tanker stored in a non bunded area
- potential spills from tanker to storage tank – running hoses over unsurfaced land, incorrect coupling, tanker drive away while connected
- process safety related incidents – HEDP and CaCl₂ contamination
- general potential for incidents due to unfamiliarity with a temporary procedure

In the email to the operator (AK 11th May 2018) it was stressed that a further 12 months duration would be granted (with all the necessary precautions taken), but that after this or for a subsequent temporary deployment, NRW raised the issue of Best Available Technology (BAT), which is the minimum standards running through the Industrial Emissions Directive and the need for investment into a permanent storage tank, impermeable bund and protected off load point. This point was reinforced in another email off AK (25th May 2018).

Considering the explanation given on site about the temporary storage and associated procedures,

reference is made to Eastman documentation *Spray Dryer – Use of Chinese HEDP as Feedstock into D2047 Reactor, SDOI 450 Changeover between calcium chloride and D2010 tanker, SDOI 447 D2016L from D2010 tanker instructions*, P&ID drawing 57633-020 rev. 4 and DEQUEST 2010 MSDS. The hazardous properties assigned to the Dequest 2010 product (incl. HEDP as an ingredient to that) are: serious damage to eyes, maybe corrosive to metals, acute toxicity cat. 4.

AK stressed the following precautions: sufficient spill kit in the vicinity; staff trained in spill response for this scenario; inspection of the tankers over the weeks deployed. ST confirmed the above and on top confirmed temporary bunding would be installed; start, mid and end of shift checks to be made by operators; quarantine procedure for Effluent Treatment Plant (ETP) added to spill procedure.

The procedures covered the receiving of HEDP ISO tankers, removal of empty tankers, wash out of CaCl₂ tank and pipework, making up batch for spray drier and associated operation of valves and inserting / removing spades, sampling and monitoring batch additions, temperature adjustments and observing 30 min. hold cycles. The procedures are complemented by check lists to ensure the operatives know what to do and the roles and responsibilities between tanker driver, off load operative and spray dryer operator are all described. Associated records, i.e. tanker weights, batch addition timings, instructions to spray drier operator etc. are noted as being made and kept as part of the daily shift logs. This aids identifying the root cause when investigating incidents and could provide evidence for refinements to be made.

During the inspection of 10th Dec. 2018 ST mentioned that Italmatch have approved the installation of a permanent tank for the Chinese HEDP. Until this tank and associated infrastructure is designed, area prepared, tank and secondary containment installed, off loading and associated pipework connections made and testing of primary containment, pumps and valves, the temporary procedure will be used.

Action 2 Eastman 20th Mar. 2019: *The operator is to confirm the timeline for the permanent tank and infrastructure installation and advise the regulator if the temporary procedure will need to be utilised beyond July 2019 (12 months from July 2018). Due: 31st May 2019*

Comments on the draft CAR1 from operator 28th Mar. 2019 – the operator is now using existing bulk D2010 storage via a dedicated loading bay. Therefore the temporary procedure and the future tank installation are not required.

Action 2 is rescinded.

Other items that have been observed and commented upon during the various inspections include:

- confirmation that an observed pipe is no longer in use – ST email 13th Feb. 2018 – although the water main below ground is in use. This was a spot check of the operators records – it is vital the operator can access accurate up to date records of all services.
- Surface water seen standing in various surface water drains connected to various sumps – explanation off ST (email 14th Feb. 2018) – that there were several problems with fouling of level switches which meant pumps were not activated. ST has acknowledged that this area could benefit from more functionality

checks, e.g. put on weekly checklist.

- In July 2018 the site water main was ruptured. A response off ST (16th Jul. 2018) confirmed that the repair was made the same day, fire water supply was unaffected and production was halted until the problem was rectified.
- On the 23rd Aug. 2018 ST confirmed that the radioactive sources used on the former Santicizer plant were removed from site by a specialist contractor – Tracerco Ltd – it is intended these will be reused elsewhere. NRW Industry colleagues who carry out the Radioactive Substance regulation have since confirmed the safe and legal removal of four sources and the associated records made.
- The operators intention to install a flue gas economiser unit on Boiler 16 and the coming out of mothball status of part of the TH2 process – are covered under the permit variation heading.
- Suggestion that W1 and W2 control valves be readily identified and closed (i.e. no bypass of W1) position be indicated so a simple spot check should reveal whether discharge is running through W2.

In the Sep. 2017 CAR1 Action 4 required more discussion around TH3 biphenyl / benzene releases. The regulator visited the TH3 area where these minor releases occurred and ST talked through the specific incidents, the root cause and the extent of the releases, which were trivial. The regulator is satisfied with the explanation – there is additional detail in the notifications section below. These events have not been repeated.

NRW commends the operator on retaining their certification to EMAS and ISO 14001 environmental management system.

Previous Actions

In the CAR1 of September 2017, 7 actions were raised. All previous actions to September 2017 have been closed.

Action 1 15th Sep. 2017 – ST supplied a response on 21st Nov. 2017. This concerned reconfiguring boiler 16 with the gas turbine and therefore reverting to CHP mode of operation with the ELV for NOx being 75 mg/m⁻³. For some time the boiler had been operating without the gas turbine and with the boiler then configured with only supplementary burners, the operator was exceeding the ELV of 75 mg/m³ (GT mode, from V006 variation) and also exceeding the previous boiler NOx ELV of 150 mg/m³ – the site received non compliances and a warning letter for this (20th Sep. 2017). The operators response to this action was to state that the GT would be refitted in Dec. 2017 allowing commissioning and training to take place, with full testing and operation by end of Jan. 2018. During one of the inspections the boiler house and gas turbine were examined to confirm installation. **Action closed.** *Note there have been other issues with boiler 16 and the GT unit – see notifications.*

Action 2 15th Sep. 2017 – A response was received dated 21st Nov. 2017. This action required testing data for emission points A28 (Santowax furnace) and A29 (TH3 biphenyl column furnace / reboiler), as both units exceeded their ELV for NOx of 135 mg/m³. After adjustments and in house retesting and subsequent 6 monthly monitoring, both furnaces showed emission values for NOx well within the ELV. Data values reported were 78, 89 and 83 mg/m³. The operator is confident that the adjustments will result in stable

operation and no need at this time to conduct additional monitoring beyond the 6 monthly, twice a year. **Action closed.**

Action 3 15th Sep. 2017 – This concerned conducting a NO_x emissions impact assessment. This came about from assessing various data for TH3 pyrolysis furnace and TH3 biphenyl and Santowax furnaces and particularly TH3 pyrolysis furnace exceedances. This is allied to the original permit not stipulating NO_x monitoring for TH2 and the total impact of NO_x from boilers and furnaces (TH2 and TH3) needed to be assessed. To an extent the permit variation (see separate heading) and reconfiguration of boiler 16 to GT CHP mode has overtaken this by including Improvement Conditions IC34, IC35, IC36 and IC37 – which cover variously emission points, monitoring and NO_x limits and impact. The operators response (21st Nov. 2017) confirmed that an ADMS modelling exercise had been commissioned. A more detailed assessment of total NO_x, factoring in background levels, is required to support the inclusion of TH2 and TH3 pyrolysis furnace monitoring, with an increased ELV of 200 mg/m³.

In an email off ST (11th Jul. 2018) the operator has confirmed that one of the TH2 pyrolysis furnaces and benzene column are being brought back on line. TH2 had been mothballed when TH3 came on line. **Action 3 closed.**

Action 3 Eastman 20th Mar. 2019: *The operator is to provide the modelling report with an explanation of the results and any improvements identified, alongside the response to IC35. Due: 1st Dec. 2019*

Comments from the operator on the draft CAR1 received 28th Mar. 2019 – *the modelling report was originally submitted as part of the variation (Dec. 2018), therefore all that is required for Action 3, is along with the IC35 response, is some narrative and reference to existing reports (data, graphs, tables, conclusions etc.) and interpretation on the impact of NO_x.*

Action 4 15th Sep. 2017 – This was covered during one of the inspections (TH3 benzene / biphenyl releases) – see above. **Action closed.**

Action 5 15th Sep. 2017 – This action about an apparent exceedance of mercury at W2 has been overtaken by the permit variation, which clarifies the basis for W2 limits. In the response to this action (ST 21st Nov. 2017), the W2 discharge was not made direct to the estuary (although it does have bypass capability), but was measured (as per the V006 permit variation) and discharged into the effluent lagoon and then discharged via W1, which was also measured and compliant with regard to mercury. The regulator agrees with the operator in that the previous surface water emission limit table was not clear. NRW accepts that this result should not be regarded as non compliant. **Action closed.**

Action 6 15th Sep. 2017 – This concerned the chloromethane emissions at emission point A6. The operator's response (21st Nov. 2017) states that the emission monitoring protocol is going to be reviewed. This can be confirmed within the response of IC34. **Action closed.**

Action 7 15th Sep. 2017 – This action required some additional explanation with regard to the declared improved water efficiency figures. The operators response (21st Nov. 2017) declared a number of site initiatives that have improved water efficiency. This is an iterative process and many things can be looked

at to seek such improvements. While there is a financial gain to reduce resource / energy use, there is also a number of environmental benefits. This suggests the operator takes environmental considerations seriously. **Action closed.**

Scheduled Notifications

There have been numerous notifications as per the permit condition and schedule notice. Some notifications will reflect permit breaches and whilst some of these go back to 2018, there were no non compliances recorded. Any notifications that are considered non compliant will be applied in this compliance year, 2019. The regulator will ensure that this does not unduly affect the site compliance banding any more than if they were applied in the year they occurred. Sometimes a decision on compliance is awaiting the Part B explanation and / or assessment or follow up inspection by the regulator.

Therminol acetone transfer line 28th Oct. 2017 – The Part B explanation was received on 21st Nov. 2017. In summary mechanical and solid residues were the cause of an acetone transfer line failure. The operator carried out the following actions: check line for blockages, test relief valves, pressure test hoses, check non return valves, fit longer hoses and 4 new non return valves. In addition the TH3 non critical non return valve list was reviewed and updated. The release either volatilised or was otherwise contained. The regulator does not have any evidence to consider this a non compliance on this occasion, based on mode of failure, quantity and lack of environmental consequence.

Therminol 3 CO₂ vent 25th Oct. 2017 and 14th Jan. 2018 – This notification was for approximately 27lt and 36lt of benzene released via a carbon dioxide vent. The releases were contained as the whole of the TH3 production area is engineered with kerbs, sills and impermeable surfacing. The investigation led to a capital project to increase CO₂ purge pressure – the operator states that this was completed during the 03/2018 shutdown. This event is not regarded as non compliant. There will be many components on a continuous process operation and the evidence does not suggest poor design or operation or lack of competence. The alerts to the event and the containment measures prevented any environmental harm. The losses are trivial compared to the inventory movements. The location of this incident and a discussion around the causes and components involved took place during one of the 2018 inspections.

TH3 benzene pre-heater area 11th June 2018 – This notification relates to approximately 20 - 50lt of benzene released when maintenance was carried out and residual benzene was not purged out of the system despite 450kg of CO₂ being used. Actions carried out were changes to procedures, such as increased CO₂ purge and monitor during future decokes. The regulator does not regard this event as non compliant. The spill was captured in the TH3 tertiary drainage system and interceptor. The location of this incident and a discussion around the causes and components involved took place during one of the 2018

inspections.

Dequest 2010 bellows 26th Jul. 2018 – The Part B response was submitted on 21st Nov. 2018. This event was further discussed at the 10th Dec. 2018 inspection and more information was added and the Part B resubmitted on 20th Dec. 2018. An acidic liquid was released from a failed bellows on the 2010 reactor. The spill, approximately 2.5m³, was caught in the process area bund, which drains to the effluent system. The remaining batch was transferred and the deluge system was activated. A software control fault resulted in the process going to failsafe mode. The operator then goes on to describe how this meant the bellows was “locked in”, while the temperature and pressure caused the bellows to rupture. The site deployed their emergency response team. Investigation has led to consideration of an upgrade of an ageing control system, change failsafe mode and add controller failure to emergency instructions. The operator confirmed that the release had no effect on the effluent system and that there was no fume escape beyond the site boundary. NRW received no calls through the incident control centre relating to this incident. There are a number of criteria that warrant this event being considered non compliant: amount lost, duration of event and operator failure to recognise the failsafe mode could lead to a bellows rupture. Additionally the operator has recognised that the system was ageing and that this is a factor in the release.

Non compliance: *A minor non compliance (CCS3) is being applied for the bellows failure event (26th Jul. 2018) and unauthorised release, in respect of permit conditions 2.3.1(a) and 3.1.1. Failure to comply with an environmental permit is an offence under regulation 38(2) of the Environmental Permitting Regulations (consolidated) 2016.*

Action 4 Eastman 20th Mar. 2019: *The operator is to update the regulator on the changes to the applicable control system physically and procedurally. Due: 31st May 2019*

Boiler 16 gas turbine and NOx exceedances 20th Nov. 2018 – This was discussed with ST and Ian Bartlett during the 10th December inspection. AK chased the Part B response earlier in March 2019. The gas compressor failed and therefore the gas turbine cannot be operated and this leads to boiler 16 running with just supplementary burners, which usually leads to an exceedance of the NOx ELV of 75 mg/m³ as has been reported in this notification – concentrations have been estimated at around 200 mg/m³.

Non compliance: *A minor non compliance (CCS3) is being applied for the gas turbine compressor failure and exceedance of the NOx limit failure (20th Nov. 2018), in respect of permit condition 3.1.2. Failure to comply with an environmental permit is an offence under regulation 38(2) of the Environmental Permitting Regulations (consolidated) 2016.*

Action 5 Eastman 20th Mar. 2019: *The operator is to submit a Part B as soon as possible and confirm if the boiler is running with the gas turbine and in CHP mode and compliant with the permit ELV of 75 mg/m³. Additionally update the regulator with regard to the outcome of the conversations with maintenance contractors on availability of critical components. Due: 31st May 2019*

Upon review of the draft CAR1 the operator submitted a Part B. Therefore Action 5 rescinded. The submission reveals that the GT was off line for 31 days and was exceeding NOx ELV – hence the non compliance. Between the operator and maintenance contractor the following will take place: contractor

realises their response was not as quick as it should have been and are providing more local based resource; increased frequency of oil sampling ad possible change to oil used; either the supplier will provide certain critical spares or Eastman will consider a business case to purchase said spares.

Previous to this event the regulator required an update that boiler 16 was finally operational in CHP mode, after a lengthy period in “fresh air” mode (ref. warning letter Sep. 2017) and that emissions had returned to compliance with the 75 mg/m³ permit limit for NOx. On 23rd Aug. 2018 ST emailed a letter confirming that via MCerts monitoring an average concentration of 53.8 mg/m³ NOx has been recorded in the boiler flue gas. This demonstrates that the lower limit of NOx is readily achievable at this emission point when the GT is fitted to boiler 16.

It is crucial that an operator can identify critical environmental kit (i.e. equipment, that if it fails, can lead to unauthorised releases or exceedances of emission limits) and liaise with maintenance staff, contractors and service / parts providers, to ensure readily available spares and rapid return to normal operation.

Ongoing NOx exceedances at TH3 pyrolysis furnaces emission points A26 and A27 – This has been an on / off issue since TH3 was commissioned. The recent permit variation has increased the NOx limit at the pyrolysis furnaces (including TH2) from 135 to 200 mg/m³. IC35 and Action 3 20th Mar. 2019 require these furnace NOx emissions to be assessed and proposals for complying with the permit ELV to be submitted to NRW. The Part B will be submitted once the operator has gathered the relevant information. In the meantime the regulator will not apply a non compliance until the operator has responded to Action 3 above and IC35, although Part A notifications should still be submitted.

PCP in W1 effluent weekly mass released, week ending 8th Jan., 11th Feb., 11th Mar. and 9th Dec. 2018 – The permit has a weekly limit of 250g PCP released via W1 and these notifications show levels of 295g, 261g, 362g and 280g being released. This is an ongoing issue and is related to IC33 which has a deadline of 31st Aug. 2019.

Non compliance: *A minor non compliance (CCS3) is being applied for the exceedance of the PCP limit from W1 (variously through 2018), in respect of permit condition 3.1.2. Failure to comply with an environmental permit is an offence under regulation 38(2) of the Environmental Permitting Regulations (consolidated) 2016.*

The operator is working to address the legacy contamination via IC33. The regulator will not apply any more non compliances for this specific parameter via W1 until IC33 is complete, assuming the deadline of 31st Aug. 2018 is met. If, after the completion of IC33, PCP levels again exceed the ELV, further non compliances could be applied.

IC33 is covered below.

The last set of data assessed was up to and including June 2017 – ref. to CAR1 Sep. 2017. The sets of data assessed here cover Jul. 2017 – Dec. 2018. The monitoring and reporting requirements (up until Dec. 2018 – from then permit varied) are:

W1 and W2 – weekly composite sampling and continuous pH and volume discharged monitoring, reported quarterly.

A4 (boiler 16), A26, A27 (TH3 pyrolysis furnaces), A28, A29 (biphenyl and Santowax column process heaters / reboilers) – 6 monthly extractive sampling; *A6, A12* – quarterly sampling; *A6, A15, A16, A30* – annual sampling. All air emission points reported annually.

The regulator examines the routine submissions as they arrive in order to identify missing data or non compliances, the latter should be notified via the Schedule 1 form as soon as the operator is aware of a breach of a permit condition or limit – this would usually be ahead of the monitoring data submission. Apart from notifications already mentioned, the regulator has received no other notifications of emission limit exceedances. Detailed assessment of the monitoring results is conducted within this CAR1 and trends are examined in the submission provided annually by the operator in accordance with permit condition 4.2.2.

Emissions to water W1 and W2 – All results were compliant except those PCP results already notified via the Schedule 1 notice and recorded earlier as non compliant. Several COD results were over the W2 ELV, but as already stated and now covered in the varied permit, W2 measures effluent entering the ETP prior to W1, receives some treatment, before then being discharged via the long sea outfall, within which W1 is situated. The varied permit also makes it clear that W2 should only be operated and monitored if the bypass of ETP and W1 is used in extreme flooding.

Question 1 20th Mar. 2019: *Eastman to explain why 150 ug/l is written in the ELV column for PCP at W2 – does the operator realise the ELV should be 15 ug/l? Secondly for Q. Oct. – Dec. 2018, there is no result for phenol at W1 – is this an omission or a zero / not detected result?*

Comments from the operator after reviewing the draft CAR1 28th Mar. 2019 – the new monitoring forms going forward will represent the limits in the variation (Dec. 2018). The phenol result was indeed a nil return as since the removal of the Santicizer process, which was the phenol source, there is no phenol in the effluent.

The previous permit did not stipulate the monitoring method – although the regulator expects the operator to demonstrate why they have chosen a certain analytical method, if not the methods listed in the Appendices of monitoring guidance note M18. This is influenced by in house monitoring (typically not accredited to ISO 17025 - laboratory proficiency standard) verses external laboratory that is accredited to the standard ISO 17025. A detailed examination of the analytical methods used will be made in the next OMA, 2020. A brief look at the monitoring returns reveals that the operator has at least confirmed the class of analytical method for each parameter, e.g. GCMS for organics, ICP for some metals – these are typical methods for those parameters.

Action 6 Eastman 20th Mar. 2019: *The operator is to submit the most recent round of Eastman results from the Aquacheck inter lab proficiency scheme. Due: 31st May 2019*

Emissions to air – All listed emission points to air with an ELV have been reported annually as per the permit conditions. Unlike the emissions to water (and verified in the 2016 OMA) the operator uses MCerts contractors and analysis for emissions to air. Two years worth of data is assessed here: 2017 and 2018. As already notified there have been exceedances of NO_x at boiler 16 and NO_x at the TH3 pyrolysis furnaces. All other results are compliant, but the regulator makes the following comments:

- Total NO_x (A2 – A4) mass limit for 2017 almost reached the limit of 20,000 kg – this is likely to be due to boiler 16 without GT and TH3 furnace performance.
- Emission points A30 and A16 – no results for 2017 or 2018.
- Emission point A27 – no result for benzene for 2017.

Action 7 Eastman 20th Mar. 2019: *The operator to provide an explanation for the last two bullet points above. Due: 31st May 2019*

Annual Performance Parameters and Activities, EMS and Fugitive Emissions, Waste and Water Review

A variety of items are required to be submitted on an annual basis in accordance with the reporting conditions of the permit, namely: waste – disposed / recovered, water use, energy use, trends in environmental performance, annual performance, EMS target progress and fugitive emissions review – the latter two dropped in the new permit – now covered by the overall management system condition and conditions relating to emissions not from point sources. Additionally permit condition 2.4.1.2 requires water efficiency and waste minimisation audits every 4 years.

There are no identifiable trends in waste production or waste disposed verses recovered or hazardous and non hazardous waste. The waste per unit output is also variable, but overall lower than several previous years.

Water use is slightly up in total, but lower per tonne of product produced. Similar to waste, against the last eight years, while the use for 2018 is slightly higher than 2017 in m³, the last three years are considerably lower than 2010 – 2015. This appears to be evidence of water efficiency initiatives alongside increased production and production efficiency.

Energy data shows a clear improving trend: less primary energy usage, along with lower CO₂ produced, alongside lower CO₂ produced per tonne of production.

There are no other obvious trends in other performance parameters other than COD kg/t is significantly higher than years 2010 – 2016. This may be a reflection of the removal of the Santicizer plant and subsequent mothballing of the biological effluent treatment plant. This would lead to a larger load of COD passing into and through the ETP without treatment – ***this will need to be looked at, especially in the light of IED permit reviews applying the BAT AELs from the CWWT BRef.***

In terms of permit condition 4.1.5 – requiring a summary of improvement targets set under the EMS, a submission was received dated 29th Mar. 2018. The submission makes it clear where targets and projects come from and why, e.g. improvement conditions, future compliance obligations, addressing legacy issues, reductions on environmental impact and making the EMS more robust and effective. Included in the submission is a table laying out seven areas and a column to indicate progress. Highlights include: the setting up of an Energy Improvement team, progressing the PCP removal project (IC33), optimising TH3, looking forward to addressing the tighter BAT AELs in the relevant BAT Conclusions. As noted earlier, two other environmental objectives have been achieved: boiler 16 NOx reduction and energy recovery (CHP) and recertification to the EMAS regulation. The operator is commended for their diligent efforts to make tangible environmental improvements.

Permit condition 4.1.4 requires the operator to review fugitive emission release sources and ensure BAT and appropriate measures are applied. The main outcome here was that monitoring using a PID along benzene transfer systems and other parts of the Therminols production process, did not reveal any threats to the work place exposure levels and this can also be taken (given the low WEL for benzene) as a reasonable indication of no / low environmental impact. Benzene, being a known volatile carcinogen and held in significant inventory, is a priority substance for release assessment.

Recommendation 2 Eastman 20th Mar. 2019: *In the future fugitive emissions assessment should be broad enough to make a comprehensive list of potential sources (to atmosphere, ground and surface water, e.g. sewers in poor condition), based on substance, how stored (above ambient temperature / pressure, volatility etc.), how used and how often (e.g. tank fillings, reactor emptying etc.) and apply a screening methodology to identify sources that may require quantification by estimation, calculation or direct measurement. This list / table of substances / sources would then be the basis for periodic reviews.*

The site has also submitted a water efficiency and waste minimisation review, dated 23rd Aug. 2018. As mentioned earlier water use overall is showing a decreasing trend and this is attributable to several initiatives. The operator has provided details of the following initiatives: submerged pumps, replace leaking equipment, certain water coolers off when not required, leaking underground line replaced. A significant point declared in the submission is that while waste production fluctuates and can be increased by site maintenance and construction projects, raw material usage is a better overall KPI. A graph supplied showed that, against an increased production, raw material use is stable to decreasing – i.e. improved production efficiency. Previously tentative discussions have been had between the operator and the regulator about Santotar waste and the feasibility and legality of using it as furnace fuel, therefore attaining an element of waste recovery against disposal and further reducing raw material fuel consumption.

Recommendation 3 Eastman 20th Mar. 2019: *The operator is encouraged to explore this potential future Santotar use project.*

Permit condition 4.2.2 (of the Dec. 2018 variation) requires the operator to report a review of the monitoring results, annual production data (addressed above) and performance parameters (addressed above). A submission was received dated 22nd Feb. 2019. This is a new permit condition and as such overlaps to an extent with reporting data required in the former permit, but nonetheless assessed in this CAR1 as they have been submitted previously by the operator. The submission is a succinct overview of the important performance related aspects of the plant, i.e. increased production, NOx issues, PCP issue, effluent COD, VOCs and photochemical ozone potential. One point noted is the lower chloromethane monitoring results data, noticed when the operator outsourced the monitoring from in house methods to an external, MCerts accredited test house.

Recommendation 4 Eastman 20th Mar. 2019: *The operator should periodically assess any analysis (including sampling and sample preservation) conducted in house for accuracy and precision. NRW recognises that the operator is part of the Aquacheck inter lab proficiency scheme. This recommendation is aimed at ensuring internal audits and procedure reviews along with the relevant training, is implemented so as to minimise potential errors in analytical results.*

IC33 Update and Progress

This improvement item addresses the ongoing reduction of pentachlorophenol (PCP) from a legacy ground contamination source, leaving the site through seepage into poor drainage and into and through the effluent system. The item has been extended many times and delays have occurred – the regulator has stressed that real progress must be made towards completing this item, which is currently extended until 31st Aug. 2019.

The progress and communications assessed here are dated: 31st Jan. 2018 (letter from ST) and Jun. 2018 Oceans ESU Reed Bed Treatment Concept design specifications, ST email updates: 11th Jul. 2018 and 23rd Aug. 2018, ST letter 20th Dec. 2018.

NRW requested written proposals of the reed bed treatment scheme. In the operators Jan. 2018 letter, it is confirmed that lab trials indicate that the project is viable and that pumping groundwater through the reed bed would retard and breakdown the PCP. The overall scheme success does depend on groundwater pumping trials, otherwise the reed beds will not have a source of contaminated water on which to act. The pump and recharge tests also provide data on the optimum size of the treatment bed. At this stage NRW has not examined the design specification in great detail, but from literature and company testimonials, plus evidence in guidance available, there have certainly been successful applications of this technology for removal of chlorinated organic compounds.

In Jul. 2018 ST emailed to state that the project was behind schedule – testing and design refinement have been completed, but final costings and implementation have yet to be completed.

On 23rd Aug. 2018 a further email update off ST declared that detailed design was still to be refined, but that installation was still to be within 2018.

The most recent update is dated 20th Dec. 2018 and is a letter off ST. Firstly the 2018 deadline has been missed, but the operator is now in receipt of the detailed design and that the intended installation should be complete in Q.2 2019.

This will need to be met and then monitoring of the success (presumably success criteria are part of the proposal) can be started, with real evidence of reductions of PCP to be seen in future monitoring data.
IC33 extended to 31st Aug. 2019.

Permit Variation

The operator has applied for and successfully obtained a permit variation and consolidation of the previous permit and several variations. The permit takes the form of the current installations permit template, has updated and clarified monitoring requirements, includes the long sea outfall as part of the installation, has updated the permitted activities and now includes TH2 as well as TH3 furnace monitoring. The variation has confirmed the completion of the previous 32 improvement items, carries over IC33 (PCP) and has added IC34 – IC37, which variously address NOx impact assessment, review of aerial emission points and monitoring requirements, boiler 16 and economiser emissions and economiser operating details.

END

EPR Compliance Assessment Report

**Report ID:
CAR_NRW0034888**

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

Site	Newport Chemical Complex	Permit Ref	BR97151B
Operator/Permit holder	Solutia UK Ltd	Date	10/12/2018

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			
E1	C3	Maintenance procedures to be improved	31/05/2019
E3	C3	Completion of IC33	31/08/2019
C2	C3	See Action 4 in CAR1	31/05/2019

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.