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Office of Environmental Enforcement
Environmental Protection Agency,
John Moore Rd.,
Castlebar,
Co. Mayo.

26 February 2024

Register No.: P0110-02
Company Name: Arran Chemical Co. Ltd.
Arran Ref: EPA891
Re: Issues and Actions from Meeting Nov 2023 (MTG000629)

Dear Inspectors,

I write to provide the Agency with a reply to the discussion points and associated actions at our face-to-face meeting in November 2023 at the Arran Chemical Company (Arran) site. The following bullets summarise the discussion points:

1. *Consider feasibility of re-circulation of by-pass stack gas into the system to prevent discharge through emission point Ref. No A2-2 (Carbon Adsorption Unit)*

This option has been examined by Arran Engineering and it has been concluded that this is not a safe and feasible solution to the bypass events. It has the potential to lead to the generation to further high LEL (lower explosive limit) conditions which has severe safety issues (equivalent of removing the bypass safety option). Arran are investigating options to buffer the vent header emission concentrations and subsequently lower the potential for LEL spikes using "dilution air". The installation of a "buffer tank" at Arran last year resulted in trails that had the effect of delaying the onset of some bypass events. However, further work is required, and this option is being investigated to ascertain if reducing spikes in LEL entering the vent head will subsequently reduce the onset of bypass events.

2. *Consider installing lower explosive level (LEL) sensor after the scrubber to quantify scrubber efficiency before discharging through A2-3 (Regenerative Thermal Oxidiser).*

The upgrade to Arrans regenerative thermal oxidiser (RTO) in August 2023 with the installation of new temperature probes to manage heat distribution and to preheat the incoming waste gas has resulted in the prevention of blockages within the ceramic blocks. However, the necessary pipework modifications required for this upgrade have eliminated potential to change the LEL sensor position. If positioned after the scrubbers, it will not have the sufficient residence time from the RTO to activate the bypass system in time. Performance

testing of the scrubber efficiency undertaken during site commissioning of the new abatement system did demonstrate the limited effect of the scrubbers on LEL concentrations as the scrubber are designed to maximize removal of acid fumes before the RTO rather than LEL.

3. *Put in place a flame ionisation detector (FID) that operates in a scale appropriate to measure concentration and flow rates at emission point Ref. No. A2-2 during a bypass event.*

Arran have examined a number of options on this. Firstly, the changing of the range of the existing FID to measure bypass event (0-10,000 range) from the current monitoring range of (0-100 range) would invalidate the MCERT's qualification of the existing FID and remove precision required for the current monitoring limits.

Secondly, the cost of procurement of a new FID (€30K) and provision of heated sample line, hydrogen fuel and span gas lines (~€20K) is prohibitive at this point, and has not being included in any capital budgets for 2024. However, Arran has examined the option to rent a portable sampling FID as used in emission monitoring testing for a number of weeks to monitor bypasses. This rental FID is now installed and will monitor bypass events over the coming weeks.

It should be noted that since the November meeting the duration and number of bypass events has reduced significantly as a result of the modifications made last year including installation of the buffer tank and the auto resetting of LEL after bypass events. Arran will monitor the bypass events for a period of time and are intended on using any additional funds to preventing bypass events rather than monitoring every event.

4. *Determine the correlation between chemical oxygen demand and tetrahydrofuran in ground water analysis results.*

The experience of Arran in relation to the correlation of tetrahydrofuran (THF) and chemical oxygen demand (COD) (when Arran had a dedicated THF scrubber) was that COD measurements did not reflect the scrubber status accurately. Arran has used the COD of scrubber solutions to trend scrubber performance and to trigger the need for replenishment except for THF scrubbers. This knowledge does not encourage the establishment of a useful indicator for ongoing groundwater tracking using COD & THF. Currently the COD of groundwater pumped as part of the remediation program is <20 mg/L and there is no link between THF & COD that can be determined accurately.

5. *Liaise with neighbouring industrial licensed facilities to develop a plan of cooperation for monitoring groundwater contamination that includes areas outside of the licensed boundary of Arran Chemical Company.*

Arran has for many years had a plan of cooperation between neighbouring sites for groundwater monitoring, including the sharing of data for all our existing sites for all boreholes. Six of ten existing Arran monitoring wells are located on land of neighbouring facilities including Alexion and Alkermes. All sites share the data with respect to the Monksland spring and surface water sampling points. Arran is currently establishing contacts with the newest neighbouring operations with the view to extending the monitoring scope in the area and future

sharing of data from their new wells. The Bord Gais Energy gas-fired power station site is currently under development and is still in early construction stages, and only limited ground & surface water data collected to date.

6. *Provide information to the Agency demonstrating the current and actual conditions with regard to the zone of contamination and at a minimum refer to whether the contamination plume is stagnant, shrinking, drifting or gone and if not when it is likely to be remediated fully. The submission shall provide a conclusion as to whether the contamination has reached the Cross River.*

RSK (Minerex Environmental Ltd) are currently preparing a report on the updated status of groundwater in Monksland with respect to Arran remediation. The consultant has been provided with the request above for inclusion in the report, which will be available by mid-March for submission to the Agency.

7. *Provide documentation to the Agency demonstrating the agreements, monitoring arrangements and communications between the licensee, the Local Authority and Monksland Wastewater Treatment plant operators informing them of the concentrations of DCM (dichloromethane), benzene, toluene, ethylbenzene, xylene discharged to the Treatment Plant between 2017 & 2023.*

Arran has not had much formal or informal communications with the Local authority or Monksland Wastewater Treatment (WWTP) plant operators over the years 2017 to 2023. The list of documentation exchanged was in relation to;

- A revision of the effluent licence (2018)
- A request & approval discharge of groundwater to sewer to WWTP with analysis provided (2019)
- An application to extend the discharge of groundwater to sewer with updated analysis provided (2019) (proposal not completed and cancelled)
- Working with Trade Effluent Discharge (TER), a body operating with Uisce Eireann (formerly Irish Water) to sample effluent discharges and collate monitoring data since 2023 (2021 - 2023)
- Submission to TER with all 2023 monitoring data for all parameters. (2024)

Arran continually reviews operations to ensure compliance with its licence. If you have any further queries please contact Arran.

Kind Regards,

Cyril Furey
Environmental Manager