

Natural Resources Wales (NRW) permitting decisions

Variation of a Bespoke permit with Consolidation

We have decided to issue the variation for Airbus Operations Limited operated by Airbus Operations Limited.

The variation number is EPR/BM3965IA/V007

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Key issues of the decision

Introduction

Airbus Operations Limited currently operates the activities covered by environmental permits EPR/BM3965IA and EPR/BM3937WE. In the interests of simplification and streamlining, the Operator has applied to consolidate these permits into a single permit. The permits have been consolidated into EPR/BM3965IA (the aircraft wing manufacturing permit) as a result of this variation. Therefore EPR/BM3965IA will become the base permit for the installation going forward.

This variation also incorporates the following change, as applied for by the Operator; specifically the operation of a new paint booth inside the Full Single Aisle Paintshop (FSAP). The new paint booth comprises separate preparation and "combo" (combined spray painting and curing) booths, which will increase the overall number of paint booths in the FSAP from 4 to 5. The new paint booth is necessary to allow more flexible production, increased booth utilisation and provide for increased production throughput. The new booth will undertake the same production operation supplementing the existing four paint booths.

In addition, we have used this variation as an opportunity to make the following minor NRW initiated changes to permit EPR/BM3965IA:

- Amendment of Table S1.1, activity S6.4 B (a) to include “sealing” into the description of the listed activity. This change is to clarify that sealant is included as “any other coating material” as referenced in the S6.4 B (a) activity definition within the Environmental Permitting Regulations (England and Wales) 2010 (EPR). Therefore permit condition 4.2.5 applies to both painting and sealing of wing structures. The reference to “and exhaust of extracted process air to air” has been removed from the limits of specified activity column to reflect the fact that sealing takes place on the shop floor (without air extraction), rather than in a paint shop (with air extraction). However, we have added “including cleaning of coating equipment” to the limits of specified activity column in recognition of the fact that coating equipment such as paint spray guns need to be cleaned with organic solvents.
- Amendment of Table S1.1 to include “surface cleaning using organic solvents” and “coating wing structures using organic solvents” separate directly associated activities. These directly associated activities have been added because both are specific activities which use organic solvents, as listed in Annex VII, Part 2 of the Industrial Emissions Directive (2010/75/EU) (IED).
- Amendment of Tables S3.1 and S4.1 of the permit to remove requirement for quarterly mass balance reporting of VOC releases from the Paint Shops. This is because the requirement for a mass balance of VOC releases from the operator is now addressed by the annual solvent emission plan submission (required by permit condition 4.2.5).

The Regulated Facility

The consolidated permit (EPR/BM3965IA) comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations:

- S1.1 A (1) (a): dispersed combustion plant including CHP and associated reserve boilers;
- S2.3 A (1) (a): chrome anodising and TSA anodising (including etch and pickling) on LCM and SMC facilities until conversion process is complete, then TSA anodising only;
- S6.4 B (a): painting and sealing of wing structures;

together with the following Directly Associated Activities (DAAs):

- Manufacture of wing structures;
- Machining;
- Autoclaves;
- Effluent Treatment;
- Surface Cleaning using organic solvents: and
- Coating wing structures using organic solvents.

The consolidated permit applies to only one part of the installation comprising the listed activities and DAAs identified above which are under the control of

Airbus Operations Limited. The name and permit number of the operator of the other part of the installation is detailed in the permit's introductory note.

Extent of the Site of the Facility

The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility including the location of the part of the installation to which this permit applies on that site. A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.

Applicable Directives

All applicable European directives have been considered in the determination of the application.

Environmental Risk

We have reviewed the operator's assessment of the environmental risk from the facility. There are no changes to any of the existing emission limits in the permit as a result of this variation. Similarly the installation of the new paint booth does not require any additional land or change the current permitted boundary of the installation.

Point Source Releases to Air

There are two new release points associated with the new preparation and “combo” (combined spray painting and curing) booths: A184 & A185. Releases from A184 and A185 will be comprised of Volatile Organic Compounds (VOC) and particulate matter, primarily from paint overspray. The new booths will use the same type and quantity of coating materials and solvents as the four other existing paint booths within the FSAP. As such, we are satisfied that no new coating materials or solvents will be introduced as a result of this variation. To minimise raw material use, spray gun cleaning is carried out in a bespoke recirculating gun cleaner system in which the majority of the solvent is recirculated within the closed system.

VOC

The operator has chosen the “solvent reduction scheme” approach to achieving permit compliance. This means that instead of using emission limits to control releases, the paints and coating materials used at the site are compliant with the solvent and solids content criteria stipulated in DEFRA guidance note PG6/40 “Statutory guidance for coating and re-coating of aircraft and aircraft components”. To demonstrate compliance, permit EPR/BM3965IA requires the operator to submit a mass balance for VOCs from the FSAP on an annual basis.

Although the addition of the new preparation and combo booths mean that VOC releases from the FSAP are predicted increase by approximately 7

tonnes per year, the Operator has submitted evidence which shows that releases of VOC to air from painting and cleaning operations across the whole installation have fallen significantly (approximately 56 tonnes) since 2013. We are therefore satisfied that whilst coating / solvent consumption will increase with the FSAP, VOCs releases from the overall installation are decreasing. We therefore consider that the proposed new paint booth will not alter the permitted installation's compliance with the EPR Solvent Reduction Scheme as presented in PG 6/40(11) and PG 6/45(11) "Statutory Guidance for Surface Cleaning" published by DEFRA.

The operator has submitted an environmental risk assessment for the proposed VOC releases associated with new emissions points A184 and A185. The environmental risk assessment uses the Environment Agency's H1 methodology. For the purposes of the risk assessment, the operator has taken a precautionary approach by selecting a surrogate VOC which is representative of total solvent emissions and which has the lowest Workplace Exposure Limit (WEL). More specifically, whilst the coating materials used may be specific to each paint shop, VOC content of these materials is very similar. Butan-1-ol (Butanol) is a common compound of the paints, typically comprising 50 – 75% of the composition. As butanol has low WEL values, the compound is therefore considered to be a suitable surrogate for representing the total VOC emission from the paint shops.

The operator has used the methodology provided in H1 to derive the following Environmental Assessment Levels for Butanol: 600 $\mu\text{g}/\text{m}^3$ (long term) and 15400 $\mu\text{g}/\text{m}^3$ (short term). We consider that the methodology used to derive these assessment levels is satisfactory. The risk assessment shows that the additional VOC (butanol) emission to air associated with the new paint booth (emission points A184 and A185) is 11.5 $\mu\text{g}/\text{m}^3$ (long term PC) and 252 $\mu\text{g}/\text{m}^3$ (short term PC).

The long term PC of 11.5 $\mu\text{g}/\text{m}^3$ equates to 1.92% of the long term EAL of 600 $\mu\text{g}/\text{m}^3$ and cannot therefore be screened out as insignificant. In this scenario, H1 requires the operator to add the PC to the existing ambient background level of a substance, to give the Predicted Environmental Concentration (PEC) in the environment. An ambient background concentration is not available for butanol. In addition, the "2012 Air Quality Updating and Screening Assessment for Flintshire County Council" does not indicate any issue associated with background VOC concentrations in the county. As such, it can be reasonably assumed that the total butanol PC from all the on-site paint shops is indicative of the maximum background concentration around the site. Therefore, based on the operator's assessment of site-wide paint shop emissions in 2015, the long term background (i.e. PC of all paint shops excluding the new FSAP paint booth) can be considered to be approximately 38% of the long term EAL of 600 $\mu\text{g}/\text{m}^3$. The additional PC contribution from the new paint booth, increases this percentage to 40% of the long term EAL. Therefore in practice, this is likely to represent the PEC as a percentage of the long term EAL. On this basis, we are satisfied that the predicted PEC is <70% of the long term EAL, which means that emissions are

screened out from the need for further assessment on human health using H1 criteria.

The short term PC of $252 \mu\text{g}/\text{m}^3$ equates to 0.16% of the short term EAL of $154000 \mu\text{g}/\text{m}^3$. At less than 10% of the short term EAL, this predicted PC screens out as insignificant under H1, so no further assessment is required.

In summary, we are satisfied that the long and short term EALs for butanol will not be exceeded and that the installation of the new paint booth will not lead to adverse human health effects.

Particulate Matter

The new spray booth is designed to meet the emission limit for particulate matter which is $50\text{mg}/\text{Nm}^3$ (as a 15 minute mean) stipulated in PG 6/40(11). Emissions of particulate matter will be abated via the use of disposable fabric filters mounted in the booth exhaust ductwork. The supplier's technical specification for the booth states the composition of the exhaust air as containing less than $3 \text{ mg}/\text{m}^3$ of paint particles.

There is no requirement to monitor particulate matter releases to air from the paintshops in the existing permit. As such, the information used in the Operator's H1 risk assessment methodology is based on estimation and is likely to not be representative of actual particulate matter emissions from the installation. This is supported by the Defra background maps which show ambient background concentrations of $18 \mu\text{g}/\text{m}^3$ in the 1 km grid square where the site is located. This equates to 45% of the annual statutory limit value of $40 \mu\text{g}/\text{m}^3$ and demonstrates that the existing process contribution from the site cannot account for 82% of the long term air quality objective, as predicted by the operator in their risk assessment. This is because the total existing particulate matter PC from all the on-site paint shops (excluding the FSAP) can be reasonably assumed to be indicative of the maximum background concentration around the site. This is further supported by the fact that the site is not located within an AQMA for particulate matter and the "2012 Air Quality Updating and Screening Assessment for Flintshire County Council" does not identify any problems with regard to meeting the annual statutory air quality limit value in the area.

The operator has not provided any data with regard to the expected PC for particulate matter for emission points A184 and A185. However, we are satisfied that booth has been designed to meet the benchmark emission limit for particulate matter (as described above) and that abated emissions of particulate matter from A184 and A185 will be small in comparison to existing emissions (making up the background) from the 4 other paint booths in the FSAP and the 6 other paint shops on site. There is a large degree of headroom before the long term statutory air quality limit value is breached and we are satisfied that the small additional PC from the new paint booth will not cause this limit to be exceeded.

There is no ambient background data available relative to the 24-hourly statutory limit value of 50 µg/m³ for PM₁₀. However, we consider that it is unlikely that there will be an exceedance of the short term statutory limit, based on the small level of additional release from emission points A184 and A185 in comparison to existing releases from the other paint booths and paint shops on site. This is also based on the fact that the site is not located in an AQMA for particulate matter.

We therefore consider that the short term estimated PC of 1966% for the existing on-site paint shops (excluding the FSAP) is not representative of actual 24-hourly emissions of particulate matter from the installation. In practice the above estimation is likely to be very precautionary, given that H1 is a conservative screening tool. Also, the operator appears to have calculated the short term PM₁₀ using the 1-hour dispersion factor from H1 guidance. Short term PM₁₀ is assessed against a 24-hour standard. There is no 24-hour dispersion factor in H1, but it would be lower than the 1-hour dispersion factor. Therefore the operator's estimated PC will be conservative. Furthermore the H1 screening tool gives results as a maximum PC on a grid, rather than at a receptor. Therefore, we consider that the estimated PC is also conservative because it is unlikely that the maximum on the grid will coincide with a receptor location.

However, we have set improvement condition IC5, to ensure that releases of particulate matter in the form of PM₁₀ from emission points are more realistically compared against the annual and 24-hourly air quality objectives using air dispersion modelling software that will be less conservative than H1 and more accurate. The purpose of the improvement condition is to verify that releases from emission points A184 and A185 will not lead to either air quality objective being exceeded, when expressed as a PEC. See **Improvement Conditions** section below.

Releases to other media

There will be an increase in washwater from the booth and condensate from the air handling unit in the FSAP as a result of this variation, which will be discharged to sewer. There will be no point source emissions to water, land or groundwater as a result of this variation.

Fugitive releases

The application describes the mechanisms by which fugitive releases to air may occur (e.g. evaporation of solvents used in paints due to drying of paint and containers being left open during use). The control mechanisms for each scenario are also described and we agree that the operator's view that the new paint booth facility will have a limited impact on fugitive emissions to air when operational. The control measures are satisfactory and have been incorporated into the permit as operating techniques through table S1.2.

Fugitive emissions to surface and groundwater as a result of this variation are also considered to be unlikely, but again, the reference to control measures in

place to prevent and contain spills have been incorporated into Table S1.2 of the permit.

Odour

We are satisfied that appropriate control measures are in place to prevent odour. This is supported by the fact that no odour complaints have been received about the site in the last 3 years. We consider that the operation of the new paint booth will not contribute significantly to odours on site. On this basis, we are satisfied that permit conditions 3.3.1 and 3.3.2 will be sufficiently protective.

Noise

The primary source of noise from the new paint booth will be associated with the air handling unit (AHU) fans within the FSAP. A number of noise abatement features included in the design of the facility are detailed in the application (e.g. use of 100mm thick insulated panels in spray booth side walls, plenum and exhaust ducting). These have been incorporated into Table S1.2 of the permit as operating techniques.

We have not received noise complaints relating specifically to the AHU fans on the paintshops and we consider that the AHU fans associated with the new paint booth will not make a significant contribution to ambient sound levels in the area. This is based on the protection afforded by the building and distance from the nearest residential areas, which is approximately 500 metres. The source is also screened by other buildings, so there is no line of sight to the noise source. We are therefore satisfied that conditions 3.4.1 and 3.4.2 are sufficiently protective. The operator is also required by condition 3.5.1 to continue to monitor noise from the installation using the BS4142:2014 standard every 3 years.

Biodiversity, Heritage, Landscape and Nature Conservation

The following sites are within the relevant screening distances for an EPR installation with releases to air:

European Sites within 10km of emission points A184 & A185:

- Dee Estuary / Aber Dyfrdwy (England) (SAC)
- Dee Estuary / Aber Dyfrdwy (Wales) (SAC)
- Deeside and Buckley Newt Sites (SAC)
- River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (England) (SAC)
- River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid (Wales) (SAC)
- The Dee Estuary (England) (SPA)
- The Dee Estuary (Wales) (SPA)
- The Dee Estuary (England) (Ramsar)
- The Dee Estuary (Wales) (Ramsar)

Sites of Special Scientific Interest within 2km of emission points A184 & A185:

- Afon Dyfrdwy / River Dee

Non-statutory sites within 2km of emission points A184 & A185:

- Mold Junction Triangle (Local Wildlife Site)
- 2 x restored ancient woodland sites

A full assessment of the application and its potential to affect the habitats sites and species has been carried out as part of the permitting process. We consider that the application will not affect the features of the habitats sites or species.

Emission points A184 and A185 will release VOC and particulate matter (abated using fabric filters) associated with paint overspray. There is no Critical Level or Critical Load set for the protection of vegetation and ecosystems with regard to VOCs or Particulate Matter. Furthermore, all of the sites identified above are more than 1 kilometre away from emission points A184 and A185 and therefore not at risk of significant effects from particulate matter emissions. This assessment is based on the fallout rate for nuisance dust which can travel up to 500 metres from the emission points, but will decrease rapidly beyond this, due to dilution and dispersion with increasing distance from the source¹. In terms of PM₁₀ releases, deposition rates above 500 mg/m²/day (the threshold at which effects have been observed in terms of dust retained on plant surfaces), are extremely unlikely as a result of the abatement techniques to be employed by the operator and the distance from the release point to any of the designated habitats sites. The fabric filters have been designed to achieve the 50 mg/Nm³ particulate emission benchmark quoted in PG 6/40(11) "Coating and Re-coating of aircraft and aircraft components". The variation does not involve the use of any additional land and the preparation and spraying operation in the new paint booth will take place within an existing building inside the existing installation footprint.

We are therefore satisfied that for the European sites, Habitats Risk Assessment (HRA) is not required, because there is no plausible pollutant linkage to any Natura 2000 and Ramsar site. The same rationale applies to the SSSI and non-statutory sites listed above.

As such we have concluded that releases of VOC and particulate matter from A184 and A185 will not have a likely significant effect on any of the European Sites identified and are not likely to damage the SSSI. In addition, we are also satisfied that the releases will not cause significant pollution at any of the non-statutory sites. We have not formally consulted on the application because no further assessment is required. The decision was taken in accordance with our guidance.

¹ Paragraph 1A.5 of "Minerals Policy Statement 2, Annex 1 Dust" by the Office of the Deputy Prime Minister

Operating Techniques

We have reviewed the techniques used by the operator and compared these with those set out in the following Defra guidance notes: PG 6/40 (11) “Statutory guidance for coating and re-coating of aircraft and aircraft components” and PG 6/45 (11) “Statutory guidance for surface cleaning”, which set out the Best Available Techniques (BAT) for the Part B activity. We have concluded that the operating techniques conform with BAT.

The operation of the new preparation and combo booths will include the following techniques that are considered to be BAT:

- VOC emissions controlled by compliance with a solvent reduction scheme;
- particulate emissions abated using disposal fabric filter elements which are designed to achieve the 50mg/Nm³ emission benchmark;
- spray gun cleaning and testing is carried out in a bespoke gun cleaner system in which the majority of the solvent is recirculated within the closed system;
- proposed booths are totally enclosed and operate under negative pressure to prevent fugitive emissions of odour and particulate matter;
- planned preventive maintenance programme to ensure the continued integrity of pollution prevention and abatement systems;
- Environmental Management System certified to ISO14001:2004.

The proposed techniques and emission levels for priorities for control are in line with the benchmark levels contained in the Defra guidance and we consider them to represent appropriate techniques for the facility.

Updating permit conditions during consolidation

We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permits. The operator has agreed that the new conditions are acceptable.

Use of Conditions other than those from the template

We have expanded the wording of condition 4.2.5 using text from IED, Annex VII, Part 7, paragraph 1. This additional text has been added to clarify that the annual solvent management plan should consider both compliance with Article 62 of IED for the previous year and identify future reduction options.

Raw Materials

Table S2.1 has been amended to remove the requirement for paints to be compliant with Defra Guidance Note PG6/40. This change has been made because PG 6/40 no longer stipulates the VOC content for raw materials.

Incorporating the application

We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.

These descriptions are specified in the Operating Techniques table in the permit.

Improvement conditions

Based on the information on the application, we consider that we need to impose improvement conditions.

Improvement Condition IC2 requires that:

- The Operator shall:
 - (i) confirm the design capacity of the effluent treatment plant by stating the maximum rate at which it can operate expressed as tonnes of untreated effluent per day; and
 - (ii) provide the European Waste Catalogue (EWC) waste codes associated with untreated effluent being introduced into the effluent treatment plant.

The design capacity of the effluent treatment plant and the EWC codes for the untreated effluent shall be provided to Natural Resources Wales in the form of a written report.

The effluent treatment plant at the Airbus Operations Limited installation is identified in Table S1.1 of the permit as an unlisted Directly Associated Activity (DAA) to the chrome anodising and TSA anodising S2.3 A(1) (a) listed activity within the stationary technical unit. The purpose of this improvement condition is to gather information which will enable us to identify whether the effluent treatment plant should be identified as is a listed activity under either S5.3 A(1) or S5.4 A(1) of the EPR Regulations 2013 amendment (SI 390), or if it should remain as an unlisted DAA. This will depend on both the design capacity of the effluent treatment plant and the nature of the effluent being treated.

The Operator's response to improvement condition IC2 is required to be submitted by 30th September 2016.

Improvement Condition IC3 requires that:

- The Operator shall submit to Natural Resources Wales an updated plan showing the location of all the emission points to sewer listed in table S3.3.

We have set IC3 because the emission points to sewer listed in Table S3.3 of the consolidated permit have been renumbered as part of the process of consolidating permits EPR/BM3965IA and EPR/BP3937WE together. The renumbering was necessary to avoid the occurrence of duplicate emission points. IC3 requires an updated plan to be submitted which reflects the renumbered emission points in Table S3.3.

The Operator's response to improvement condition IC3 is required to be submitted by 31st October 2016.

Improvement Condition IC4 requires that:

- The Operator shall confirm the total maximum consumption capacity of the seven paint shops on site as a mass of organic solvents in both kg / hour and tonnes / year. The seven paint shops are: Haden Booth, Site 5, Interim Single Aisle, Binks, Stringer, West and Final Single Aisle. Confirmation of the total maximum consumption capacity shall be submitted in writing to Natural Resources Wales.

We have set IC4 to establish whether it is still appropriate to identify the "painting and sealing of wing structures", as a S6.4 B (a) activity, or if it should be identified as a S6.4 A2 (a) activity due to the maximum potential consumption capacity of organic solvents within the paint shops. The activity will need to be listed under S6.4 A2(a) if the organic solvent consumption capacity of the paint shops exceeds 150 kg/hr, or more than 200 tonnes per year.

The Operator's response to improvement condition IC4 is required to be submitted by 31st December 2016.

Improvement Condition IC5 requires that:

- The Operator shall sample and analyse emissions from release points A184 and A185 for Particulate Matter in the form of PM₁₀, when the preparation and combo booths serving these emission points are operational. The sampling and analysis exercise shall be designed to ensure that a representative sample is obtained and shall be conducted in accordance with the requirements of the Natural Resources Wales guidance document M1 "Sampling Requirements for Stack Emission monitoring" and BS EN 13284-1.

The analysis results shall be converted into long and short term process contributions (PC) using detailed air dispersion modelling software. The

detailed air dispersion modelling shall show the PCs as a percentage of both the 40 µg/m³ annual mean UK air quality objective and the 50 µg/m³ 24-hour mean UK air quality objective for Particulate Matter. In addition, the calculated PCs shall be added to the existing long and short term backgrounds for particulate matter to derive the Predicted Environmental Concentration (PEC) at all nearby human sensitive receptors and as a maximum on the modelling grid. The air dispersion modelling shall also show the PECs as a percentage of the long and short term air quality objectives for particulate matter in order to demonstrate the likelihood of exceedance of either as result of the operation of the new booths.

The results of the sampling and analysis exercise and air dispersion modelling study and conclusions shall be submitted in the form of a written report to Natural Resources Wales.

We have set IC5 following our review of the operator's environmental risk assessment which was submitted as part of the variation application. The purpose and background to this improvement condition is described in the **Environmental Risk: Particulate Matter** section above.

The Operator's response to improvement condition IC5 is required to be submitted by 31st March 2017.

Improvement Condition IC6 requires that:

- The Operator shall provide the European Waste Catalogue (EWC) waste codes associated with chromate free untreated effluent being introduced into the effluent treatment plant. This information shall be provided when the installation's surface treatment activities become chromate free operations.

The EWC codes for the chromate free untreated effluent shall be provided to Natural Resources Wales in the form of a written report.

The operator anticipates that the untreated effluent from the surface treatment activity will be chromate free by June 2017. As such, the nature of the effluent may differ from its current form. IC6 has therefore been set to determine if any changes to the effluent treatment plant categorisation are necessary in Table S1.1 of the permit, following the response to IC2 and phase out of chromium on the surface treatment line.

The Operator's response to improvement condition IC6 is required to be submitted by 30th September 2017.

Monitoring

We have changed the monitoring frequency for VOC releases to air from the on-site paint shops in Table S3.1 from quarterly to annually. This change has been made to reflect the fact that a solvent mass balance is now required on a yearly basis by condition 4.2.5, as part of the operator's annual solvent management plan submission.

In addition, we have updated the reference to BS4142:1997 in Table S3.4 to refer to the newer version of this noise monitoring standard, specifically BS4142:2014.

Reporting

Table S4.1 of the permit has been updated to include the emission points to air from permit BP3937WE. For ease of reference, these emission points have now been renumbered using a "CHP" prefix as part of the consolidation, to ensure that there is no overlap in numbering with the original Airbus emission points.

All reporting forms affected by this variation and consolidation have been updated to reflect the requirements of the consolidated permit going forward. Finally, the requirement to report on the usage of cleaning chemical Ardrex 6333 has been removed as this chemical is no longer used at the installation.

Administrative Change

The operator has advised that the "Dash 600" paintshop is now more commonly referred to as "Haden Booth". As such, all references to "Dash 600" have been amended to "Haden Booth" in the consolidated permit.