

BUREAU VERITAS
Certification



Environmental Management System – Audit Report

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AUDI AG
Ingolstadt, Germany

Visit Date: November 17, 20-21, December 18, 2017
Date of report: March 2018

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This Audit Report and any related assessments were issued solely in accordance with the agreed scope described in Section 2. This Audit Report, and any other reports issued in connection with this subject matter, do not constitute a guarantee of continued or absolute compliance with US laws and/or regulations related to vehicle emissions. They are solely intended to provide non-exhaustive information to assist the Client's effort in evaluating its adherence with US emissions laws and regulations.

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1.0 APPLICABILITY

Sections 1.0 through 4.0 of this report provide introductory information which is applicable to three affected Volkswagen entities - Volkswagen AG, Volkswagen Group of America and AUDI AG - therefore the term Volkswagen is used for simplicity and refers to these three entities collectively. Sections 5.0 through 9.0 of this report apply specifically to AUDI AG, Ingolstadt, Germany, and therefore the term AUDI AG is used in those Sections.

2.0 BACKGROUND

On September 18, 2015, the US Environmental Protection Agency (EPA) issued a Notice of Violation to Volkswagen detailing Clean Air Act violations with regard to approximately 590,000 diesel motor vehicles (model years 2009 to 2015) that were sold in the United States (US). Following investigations, the EPA issued a second Notice of Violation to Volkswagen on November 2, 2015. As a result, on January 4, 2016, The United States of America Department of Justice (DOJ) on behalf of the EPA filed a complaint against Volkswagen.

Subsequently, a Third Partial Consent Decree MDL No. 2672 was executed between the DOJ and Volkswagen to address required actions specific to the Clean Air Act violations. The Consent Decree required Volkswagen to retain an independent third party to conduct an Environmental Management System (EMS) audit for each of the calendar years 2017, 2018, and 2019 pursuant to an industry recognized standard for their Product Development Processes (PDP) that are utilized for vehicles to be certified for sale in the US.

Within 90 days after the effective date of the Third Partial Consent Decree, Volkswagen have contracted with Bureau Veritas Certification Germany GmbH (Bureau Veritas) as an independent third party to conduct the EMS audits described above. These EMS audits included an assessment of Volkswagen's processes to comply with US environmental laws and regulations and recommendations for corrective actions.



3.0 COMMISSION

Bureau Veritas was commissioned by Volkswagen to complete an annual EMS audit in the calendar years 2017, 2018 and 2019 at specific locations that are involved in the company's PDP. The PDP defines the procedures used at Volkswagen to develop new cars starting with planning and ending with (SOP) Start Of Production (which can take several years). Based on this defined scope, audits were conducted at the following locations which are directly related to or have organizational interfaces and/or responsibilities within the brand specific PDPs :

- For Volkswagen AG in Wolfsburg, Germany
- For AUDI AG in Ingolstadt, Germany
- For Volkswagen Group of America (VW GoA): Engineering and Environmental Office (EEO), Auburn Hills, Michigan.

In addition the Test Center California (TCC), Oxnard, California was also audited due to their emissions testing responsibilities.

Further, site visits were conducted at two additional VW GoA locations to confirm exclusion from the audit scope since neither location has a direct relationship or any responsibility within the PDP. The two locations were the VW GoA Engineering and Planning Center (EPC-E) and the Chattanooga Operations, LLC, both located in Chattanooga, Tennessee and which were subsequently verified by Bureau Veritas to be out of scope of the EMS assessments.

Bureau Veritas Group is a world leader in testing, inspection and certification services. Created in 1828, the Group has more than 69,000 employees in approximately 1,400 offices and laboratories located all around the globe. Bureau Veritas helps over 400,000 clients to improve their performance by offering services and innovative solutions. They ensure that their client's assets, products, infrastructure and processes meet standards and regulations in terms of quality, integrity, health and safety, environmental protection and social responsibility.

Bureau Veritas is accredited by DAkkS against ISO 17021 standard to deliver management system certification services. This ISO 17021 standard contains principles and requirements for the competence, consistency and impartiality of bodies providing audit and certification of



management systems. Bureau Veritas accreditations are available on DAkKS website (<https://www.dakks.de/content/akkreditierte-stellen-dakks>).

To ensure relevance and impartiality of the audit, Bureau Veritas appointed an audit team with high expertise in both environmental and automotive matters and not previously involved in any business with Volkswagen. The audit team consisted of Engelbert (Lead Auditor), Anne (Auditor, Expert for US environmental law), Peter (Auditor, Technical Automotive Expert) and David (Auditor, Expert for US environmental law). Resume's for the audit team members can be found in Attachment 1.

4.0 AUDIT SCOPE AND METHODOLOGY

4.1 Choice of ISO 14001:2015 as EMS standard

In general the purpose of the environmental management standard ISO 14001: 2015, which is well known and implemented in many industries (about 350,000 ISO 14001 certificates exist around the world), is to provide organizations with a framework to protect the environment and respond to changing environmental conditions in balance with socio-economic needs. The standard specifies requirements that enable an organization to achieve its intended outcomes and to ensure the compliance of a product and services to applicable environmental regulations. The ISO 14001:2015 standard is routinely used to evaluate company-wide processes; but as requested in the Consent Decree, this audit focused on the Volkswagen's product development process for vehicles.

In general, the intended outcomes of an effective environmental management system are the following:

- enhancement of environmental performance
- fulfilment of compliance obligations for US environmental laws and regulations for vehicle certified for sale in the US
- achievement of environmental objectives.

The objective of the audits was to conduct an EMS audit to an industry-recognized EMS standard for the PDP and evaluate the EMS effectiveness to validate compliance with



applicable US environmental laws and regulations for vehicles certified for sale in the United States.

So considering the dissemination around the world and its reputation the standard selected by Bureau Veritas in conjunction with Volkswagen was the ISO 14001:2015 Standard.

4.2 Selection of applicable criteria of ISO 14001:2015

The methodology developed for these audits was to adapt the ISO14001:2015 Standard to the scope of the PDP with a focus on compliance with applicable US environmental laws and regulations identified during the audit preparation. The audit covered the locations and functions involved in or interfacing with the PDP. For each location, the EMS was evaluated against the audit criteria and to determine if appropriate and effective measures were in place to assure compliance against environmental regulatory requirements for vehicles certified for sale in the US market.

Based on the limited audit scope, regarding the PDP, and the focus on compliance, certain standard clauses or requirements of the ISO 14001:2015 Standard were considered as not applicable. Table 1 below outlines the requirements of the ISO 14001:2015 Standard that were considered applicable to the audit scope.

Table 1: ISO 14001:2015 Applicability by Clause

Clause	Title	Relevant for the Audit
4	Context of the Organization	
4.1	Understanding the organization and its context	X
4.2	Understanding the needs and expectations of interested parties	X
4.3	Determining Scope of Environmental Management System	
4.4	Environmental Management System	
5	Leadership	
5.1	Leadership and Commitment	X
5.2	Environmental Policy	X
5.3	Organizational Roles, Responsibilities and Authorities	X
6	Planning	
6.1.1	Actions to Address Risks and Opportunities	X
6.1.2	Environmental Aspects	
6.1.3	Compliance Obligations	X
6.1.4	Planning Action	X
6.2	Environmental Objectives and Planning	
6.2.1	Environmental Objectives	
6.2.2	Planning Action to Achieve Environmental Objectives	
7	Support	
7.1	Resources	
7.2	Competence	X
7.3	Awareness	X
7.4	Communication	
7.4.1	General	
7.4.2	Internal Communication	
7.4.3	External Communication	
7.5	Documented Information	
7.5.1	General	
7.5.2	Creating and Updating	
7.5.3	Control of Documented Information	X
8	Operation	
8.1	Operational Control and Planning	X
8.2	Emergency Preparedness and Control	
9	Performance Evaluation	
9.1	Monitoring, Measurement, Analysis and Evaluation	X
9.1.1	General	X
9.1.2	Evaluation of Compliance	X
9.2	Internal Audit	
9.2.1	General	X
9.2.2	Internal Audit Program	X
9.3	Management Review	X
10	Improvement	
10.1	General	X
10.2	Nonconformity and Corrective Action	X
10.3	Continual Improvement	X



Bureau Veritas also developed audit criteria based on the applicable ISO 14001:2015 clauses to guide the auditors during the performance of the audit. These criteria specifically relate to the PDP. A summary of the Audit Criteria applied to the EMS audits is shown in Attachment 2.

In cases of non-fulfillment of applicable clauses, a deviation was identified. Each deviation is graded (ranked) as a Minor or Major, depending on its seriousness or occurrence. In addition, opportunities for improvements (OFI) and Best Practices are identified and reported.

Definitions of deviation, OFI and Best Practices are presented in Table 2 below.

Table 2: Audit finding descriptions

Finding Type	Description
Deviations	
Major	A major deviation is typically defined as “Based on objective evidence, the absence or significant failure to implement and/or maintain conformance to the requirements of the applicable clauses of ISO 14001:2015 or Volkswagen’s internal EMS.
Minor	The requirements of ISO 14001: 2015 (as defined in the audit criteria) are implemented but a management system weakness is detected, but it does not affect the capability of the EMS to achieve its intended outcomes. However, there are cases where multiple minor deviations against a specific requirement could demonstrate a systemic failure and thus may be considered a major deviation. It could be reasonably assumed that more than three minor deviations from one requirement of a section of applicable ISO 14001:2015 clauses may give rise to a major deviation.
Opportunities For Improvement	Evidence presented indicates a requirement has been effectively implemented, but based on auditor experience and knowledge, additional effectiveness or robustness might be possible with consideration of a modified approach.
Best Practices	A procedure or process that has shown optimal results suitable for consideration for widespread adoption.

5.0 AUDIT PLANNING

In advance of the audit, a comprehensive audit plan was developed by Bureau Veritas and then presented and accepted by AUDI. This audit plan was adapted for each location according to its function, area of responsibility and processes related to the PDP. The Audit Plan for the AUDI location can be found in Attachment 3.



During the execution of the audit, the audit plan could be modified as necessary to assure the objectives of the audit were met. If changes did occur, they were discussed with AUDI AG, reviewed and documented accordingly.

The audit plan was expanded to include an evaluation of the operation of the emission test benches. An additional site visit was completed on December 18, 2017 to specifically evaluate the processes associated with the emission test benches. Bureau Veritas evaluated the operation of the test benches in order to complete a comparison of the applicable US environmental regulatory requirements as outlined during audit preparation with the test results.

6.0 AUDIT EXECUTION

In order to meet the audit's objectives, activities included an on-site visit, process overview presentations for selected functional departments associated with the PDP, interviews and question and answer sessions with the process managers, and a review of corresponding documentation for verification/confirmation of management system implementation. Bureau Veritas reviewed many of the management system elements that have recently been implemented in response to the Third Partial Consent Decree. Many of the policies and procedures specific to the PDP had been newly developed and/or implemented and were a result of an in-depth internal Task Force investigation that was conducted in October 2015.

Many of the actions have been implemented and some are in different stages of implementation with defined targets for completion. Considering the recent revision, development and implementation of many management system elements, applicable ISO 14001:2015 clauses will require a more detailed review in the 2018 and 2019 Bureau Veritas audits to further evaluate effectiveness. In these instances, the audit team has estimated to what degree specific elements have been implemented and evaluated the newly developed process based on the available evidence of effectiveness.

6.1 PDP Overview

The PDP defines the organizational processes and procedures used at AUDI AG to develop new vehicles and new models. In line with the Third Partial Consent Decree requirements, the



PDP starts with planning and ends with the Start of Production (SOP) of new vehicles at a manufacturing facility.

At AUDI AG, the PDP is based on the principles of project organization and the overall responsibility for a vehicle project lies with the Project Line Manager. Technical development of the vehicle is tasked with the development of new vehicle models that are in conformity to relevant regulations including environmental laws and regulations. The PDP describes the tasks and responsibilities during product development including homologation and was recently updated in December 2017.

One major organizational change to the PDP is the Technical Conformity (ET) function, which carries out the clarification of US legal requirements independently of the subsequent development phases. The function of ET was established as a result of the Third Partial Decree Consent Decree. The cooperation between ET and EEO is ensured under consideration of the organizational interfaces, which are coordinated with the Volkswagen GoA and the AUDI group organization.

EEO also interfaces with the relevant organizational unit at AUDI Group level to consolidate the compliance obligations.

The vehicle emission data is provided by the test center in Ingolstadt in the form of test reports summarized in a "Vehicle Book". The Vehicle Book is a compilation of all of the technical data and test results that are required by regulation in the US. Upon receipt of a Vehicle Book, a series of quality checks are conducted on the data to confirm accuracy.

This information is then compiled in the appropriate format and submitted to the US regulatory agencies, Environmental Protection Agency (EPA) and California Air Resources Board (CARB). These submittals are managed by the EEO organizational unit. The topics related to the homologation process are integrated into the PDP in accordance with a chronological sequence of tasks and testing activities.

The testing activities within the homologation process are:

- Aging measurements / durability



- Homologation tests for new concepts and carry over
- Continuous validation
- OBD Demonstration testing
- Authoritative process for the verification of exhaust gas and emission measurement.

6.2 Organization and Responsibilities

ET is a key function to ensure compliance with the US environmental regulations associated with vehicle emissions. An essential aspect for ensuring technical conformity for a vehicle is the introduction of a universal 4-eyes principle which requires multiple layers of approval during various milestones within the PDP process. The main tasks of ET are the organization, implementation and monitoring of homologation-relevant processes.

The ET organization is divided into the following functions:

- Homologation / whole vehicle and safety
- Homologation powertrain
- Technical regulations, authorities and associations
- Change Management & Technical Compliance.

The Tasks, Authorities and Responsibilities (TAR) for each manager are documented and described in the TAR job descriptions.

6.3 Test Benches

As part of the EMS Audit, Bureau Veritas conducted an in-depth evaluation of the emission test benches on December 18, 2017. Although there is no development being conducted at the test benches, the test bench data is a key component for verifying compliance with the US emission regulations for certifying engines to be sold in the US market. Thus, they have been included in the audit.

The mode of operation of the area is based on the international standard for test centers according to ISO / IEC 17025.



The organizational department for emissions testing of Technical Development is classified as independent and free of instructions for the handling of the test activities on vehicles. The independence of the test center is documented in an internal document signed at the board of directors' level. Independence and freedom from instructions are documented in the internal communication of November 24, 2016 by the Group Management Board, Brand Management Board and Head of Powertrain Development. In addition, there is a clear separation of responsibilities between Vehicle Test Facilities & Emission Control Technology and the Function (ET) for Test Registration, Analysis & Evaluation of Test Results activities.

During the inspection of the test bench operations the following observations were noted:

- Technical equipment of the test premises and test benches are well adapted to the requirements of the exhaust gas measurement
- The calibration of the measuring equipment was verified
- A pre-conditioning of the vehicles to 23 ° C is carried out in the upstream premises
- Order processing was standardized
- Clear organizational independence from other organizational units
- Organizational interface to I/ET-A was defined
- Operation in accordance with ISO / IEC 17025.

There is a good technical and structural infrastructure for completing emission measurements on vehicles. In some instances, the test capacity of the exhaust emission roller dynamometer test bench is covered by external service providers. These requests for services for exhaust emission measurements are controlled by a request specification document for engineering service which was last updated May 30, 2017. When services are commissioned with the contractor, it is ensured that the service is to be performed for AUDI AG is in accordance with the specifications indicated in the specifications document.

The emission test software for the engine and transmission control unit as well as the assigned serial numbers of the mentioned control units are documented in the test report of the exhaust gas measurement via the test program, whereby the traceability of the test data (software, control units) is confirmed. In the future this process will be automated by the test program, thus additionally confirming traceability of the test data (software, controllers).



7.0 AUDIT RESULTS

Deviations against the applicable ISO 14001:2015 Standard were identified for AUDI AG. Deviations include a ranking (Major or Minor) for each finding indicating the potential level of severity. A corrective action plan was developed by AUDI AG for each identified deviation. Bureau Veritas has reviewed and approved each proposed corrective action to validate that they are appropriate. Deviations and corrective actions are outlined in detail in the Deviation and Corrective Action section of this report.

In addition, as part of the audit, Bureau Veritas identified processes in place that could be considered strengths or Best Practices and also provided high level recommendations as Opportunities for Improvement (OFIs).

A brief closing meeting was held at each location at the conclusion of the site visit. This meeting focused on positive aspects of the respective EMS as well as a high level discussion specific to deviations identified during the audit.

7.1 Deviations and Corrective Actions

A summary of the deviations in the EMS specific to the PDP at the AUDI AG Ingolstadt, Germany location is provided in Table 3 below. Included is a ranking (Major or Minor), the applicable ISO 14001:2015 clause, a summary of the observed deviation and a summary of the corrective actions which have been reviewed and approved by Bureau Veritas to validate that they are appropriate. All identified deviations noted for AUDI AG Ingolstadt were classified as “minor deviations”.

Table3: Environmental Management System Deviations and Corrective Actions

Finding #	Rank	Clause	Description	Corrective Action/Recommendation
A-EMS-01	Minor	Internal specification for key process indicators	It was not yet possible to fully evaluate the effectiveness of the management system, because most processes have only recently been implemented. There is no integral evaluation of the processes on the basis of the key process indicators.	Definition of Key performance indicators (KPI's) for processes in the different action levels in the R&D department. All processes will include KPI's in conjunction with the Quality management handbook. This will be implemented no later than CW 42 in 2018.

7.2 Suggested Opportunities For Improvement:

- Consider more effective monitoring and tracking of the corrective and improvement actions resulting from the internal audits
- Consider monitoring the responsibilities and the completion status of corrective actions on a regular basis
- Consider more extensive integration of the homologation process (Technical Conformity) in the audit planning
- Consider review of conformance with the new PDP specifications when conducting employee performance reviews
- Consider adding the components and carry over parts relating to homologation into the parts list
- Consider increasing the number of EMS auditors
- Consider translating the regulatory database, which is presently available only in German, into English.

I/ET

- The objective matrix was recently introduced – consider a comparison of the objectives and indicators after the first evaluation.
- Consider introducing the objectives matrix for the complete development process.



I/ ET-B

- Consider the completion of additional measurements and evaluations with regard to exhaust emission values in the event of mechanical changes to the exhaust system (installation throttle valve).

Test Bench Area

- Consider including the change log for the software of the test benches in the records
- Consider obtaining and maintaining the accreditation documentation of the calibration service providers
- Consider the coordination of the test reports (exhaust emission measurement) with regard to traceability – serial number of controllers, software status – agreed upon by the Vehicle Exhaust Emission Test Lab department, the organizational unit EAPF of the Technical Development of AUDI AG.
- Consider adding the calibration interval for the Laminar Flow measuring device to the list of test equipment.

7.3 Best Practices

As part of the audit, the following points were rated as a good solution for optimizing the PDP at AUDI Ingolstadt:

- The "Handbook of Golden Rules" version January 2016 constitutes a significant strengthening of the PDP with regard to compliance with US environmental laws associated with vehicle emissions
- Appointment of an environmental professional inside the technical development department
- SWOT analysis in the area of powertrain (development)
- Integration of the electronic Executive Folder in the Intranet of the I/ET department
- The introduction of the four-eyes principle for reviewing compliance requirements
- Organizational structure of Technical Conformity (I/ET)
- Release process and technical changes for software developments
- Application of the GETEX database and interpretation of legal requirements.



8.0 CONCLUSIONS

Overall, the EMS for the PDP at AUDI AG conforms to the ISO 14001:2015 standard as defined in the agreed upon Audit Criteria. Bureau Veritas would like to note that many of the departments, functions, and responsibilities that were reviewed during the audit have been recently changed and their implementation is progressing.

Taking into consideration the timeline of the PDP (several years) and the recent implementation of the revised version, which was reviewed as part of the EMS audit, some vehicles approved for sale in the USA could have been partly developed under a former version of the PDP, which was not required to be assessed under the Third Partial Consent Decree. Nevertheless, within Bureau Veritas' scope the emission test benches underwent random auditing and assessment. No deviations from the specifications were observed. The vehicles that were approved for sale in the USA (after the new version of the PDP was implemented) were tested on these test benches in compliance with the homologation-specific specifications for exhaust emission measuring equipment; and should therefore meet the US emissions requirements. However, Bureau Veritas makes no warranty or guarantee that all AUDI vehicles meet all applicable US emissions laws or regulations.

In 2018 Bureau Veritas will focus on the effective implementation of the EMS and related processes associated with U.S. environmental laws and regulations.

Based on the audit, AUDI AG's recently updated PDP for vehicles sold in the US should meet the intended outcomes of an effective environmental management system including:

- enhancement of environmental performance
- fulfilment of compliance obligations for US environmental laws and regulations for vehicle certified for sale in the US
- achievement of performance improvement goals specific to the EMS.

9.0 RECOMMENDED FUTURE AUDIT ACTIVITIES

As contractually agreed, Bureau Veritas will continue to assess the implementation and development of AUDI AG's EMS through the follow-up audits scheduled in 2018 and 2019. This should allow the Audit Team to evaluate the continuous improvement of the management system.



Bureau Veritas recommends that the following items be considered in the audit planning for 2018:

- Presentation of the status of changes from the 2017 audit until the next scheduled audit in 2018
- Release of newly implemented processes and their evaluation in terms of goals and effectiveness
- Discrepancies found during the internal audit 2017-2018
- Increase in on-site interviews with employees
- Verification and review of PDP relevant environmental related issues resulting from the "Whistleblower" process.



ATTACHMENT 1: Resume of audit team - Peter

Job history

Since 1980 various Positions in the Automotive Sector (latest)

- Automotive Technical Expert Europe Operating Group
- Managing Director (Certification Belgium)
- Global Technical Expert Automotive
- Global Product Manager Automotive – Aeronautics & Railways
- Global Product Manager Automotive

Since 1999 experience as lead auditor

- Lead auditor ISO/TS 16949
- Lead auditor VDA 6.1
- Lead auditor ISO 9001

PROFESSIONAL QUALIFICATIONS and TRAINING

Wide range of qualifications and trainings for certification and automotive sector

- Lead auditor ISO 9001
- VDA 6.3:2016 Process Auditor – Certified by VDA
- First & second part lead auditor IATF 16949:2016
- Product safety representative (PSB)
- ISO 9001:2015 – 3rd Party Lead Auditor
- VDA 6.3:2010 Process Auditor – Certified by VDA
- ISO/TS 16949 Auditor Certificate by IATF - Certificate number: 2US-03-1033
- ISO/TS 16949:2002 Trainer Coach Training
- Certified Quality Auditor VDA 6.1
- ISO 9001: 2000 Auditor
- ISO/TS 16949 Auditor Certificate by IATF - Certificate number: P/VTS//0013-008
- ISO 9000 Auditor/Lead Auditor

EDUCATION

- BEL Diploma secundair onderwijs (Diploma SO)

LANGUAGES

- Dutch (mother language)
- German (C-level)
- English (C-level)
- French (A-level)



ATTACHMENT 1: Resume of audit team - David

Job history

Various Positions in the Environment Sector for more than 30 years

- HSE Director, Pacific Northwest
- Area Compliance Manager/Environmental Manager
- Compliance Manager
- Senior Environmental Engineer
- Manager, Environmental Projects
- Environmental Specialist
- Supervising Engineering Inspector

PROFESSIONAL QUALIFICATIONS and TRAINING

Wide range of qualifications

- Certified Hazardous Materials Manager (CHMM-16258)
- Certified Environmental and Safety Compliance Officer (CESCO-773325)
- Registered Environmental Property Assessor (REPA-192899)
- OSHA 40-Hour Hazardous Materials Management and Emergency Response Training and annual refreshers
- DOT HMF 126(a) and 181 trained: Preparation of Uniform Hazardous Waste Manifests
- Certificates, University of California at Davis
 - Hazardous Materials Management
 - Environmental Auditing
 - Advanced Environmental Auditing
 - Workplace Health and Safety

Wide range of Project experience

- ISO 14001 EMS Assistance and Evaluations for Clients (California & Texas)
- Air Permits at multiple facilities
- Environmental Compliance Audits at multiple facilities, California
- Storm Water Pollution Prevention Plans (SWPPPs) and Storm Water Monitoring Programs (SWMPs), Northern California
- Spill Prevention Control and Countermeasure (SPCC) Plans, Northern California
- Hazardous Waste Treatment Tank and Secondary Containment Certifications
- Natural Gas Transmission Systems Compliance Services, California
- Corporate and Operation Compliance Support for a waste management company, Northern California
- Corporate and Operations Compliance Support, California and Oregon
- Power Generation Compliance Services, Northern and Central California

EDUCATION

- B.A., Biological Sciences - University of California at Santa Barbara



ATTACHMENT 1: Resume of audit team - Anne

Job history

More than 25 years of experience in integrated Environmental, Health and Safety roles with various industries

- Senior Environmental, Health & Safety Consultant
- Director of Health, Safety and Compliance
- EHS/ Environmental Health & Safety Manager
- Environmental, Health and Safety Business Area Manager
- Director of Regulatory Affairs and Facilities
- Environmental, Health and Safety Manager for Building Insulations Division
- Compliance / Chemical Engineer

Project experience in various industries

- Environmental, Health and Safety Auditing – Regulatory Compliance Evaluations
ISO 9001/14001/18001 Gap Assessments and Loss Control Risk Assessments
- Health and Safety Program Development

PROFESSIONAL QUALIFICATIONS and TRAINING

Professional Affiliations

- American Society of Safety Engineers
- American Institute of Chemical Engineers
- National Safety Council

Wide range of qualifications and trainings for HSE

- Safety & Emergency Manager- Incident Commander Training
- OSHA 40-HR HAZWOPER
- OSHA 8-HR Training for Supervisors
- OSHA 10-HR Occupational Safety & Health Training
- 49 CFR DOT Training
- 8-HR RCRA Training
- ISO Auditor Training

EDUCATION

- B.S., Chemical Engineering, 1991 Minor: Environmental Engineering
Colorado School of Mines, Golden, CO



ATTACHMENT 1: Resume of audit team - Engelbert

Job history

Since 1993 active in the auditing process with a strong expertise within the automotive, electronic and production equipment industry

- General Manager (various companies)
- Environmental, Health and Safety manager
- Chief executive officer
- Manager of Logistics, Quality, Work scheduling department and engineering
- Team Leader

PROFESSIONAL QUALIFICATIONS and TRAINING

Wide range of qualifications and trainings of various fields

- Project management
- Education for moderators (KVP and FMEA)
- Statistic test planning
- Technique for accreditation and expertise for test laboratories in accordance to ISO/IEC 17025
- Safety and Environmental Engineer
- Expert for power station facilities
- Auditor for VDA 6.1
- Auditor for VDA 6.4
- Auditor for ISO/TS 16949
- Auditor for ISO 14001 and OHSAS 18001
- Management Conference The Academy of Management
- Energy Management to ISO 50001 (EnMs)
- Education for quality manager (ÖVQ)
- Education for Auditor (ÖVQ)
- Expert according to EN 45000 and EN ISO 17025 and EN ISO 17024
- Education for Environmental Auditor (ÖVQ)
- Lead Auditor certificate VDA 6.4 and VDA 6.1, ISO 9001, ISO 14001 and OHSAS 18001
- Lead Assessor for ISO/IEC 17024 approved by ICMCI (International Council of Management Consultant Institute)
- Trainer for FMEA, 5S-program, MSA, SGU, SCC

EDUCATION

- University of applied science, diploma for industrial engineering and management
- Higher Technical Federal School, Higher Division of Mechanical Engineering

LANGUAGES

- German (mother language)
- English



ATTACHMENT 2: Audit Criteria



AUDIT CRITERIA

A. Consent Decree Requirements from Paragraph 24:

"VW Defendants shall contract with and retain an independent third party to conduct an EMS audit pursuant to an industry-recognized standard for product development processes for vehicles to be certified for sale in the United States for each year for calendar years 2017, 2018, and 2019. Beginning with the EMS audit covering calendar year 2017, the EMS audit shall include:

- (1) an assessment of the VW Defendants' processes to comply with U.S. environmental laws and regulations; and
- (2) a recommendation for corrective actions."

"VW Defendants" means Volkswagen AG, Volkswagen Group of America, Inc., Volkswagen Group of America Chattanooga Operations, LLC, and Audi AG.

B. This means:

1. The VW Defendants have hired BV to conduct this audit according to the Consent Decree requirements
2. The industry recognized standard is ISO 14001:2015
3. The audits will occur in 2017, 2018 and 2019
4. The scope of each audit is the product development process for vehicles sold in the US (currently only passenger vehicles are sold in the US)
5. The product development process begins with the milestone PS/PM and ends with SOP (incl. the model update development process and engine development process).
6. The objective of the audit is to evaluate whether the product development process is able to ensure compliance with applicable US environmental laws and regulations for vehicles. This does not cover legal requirements related to on site activities (e.g. emission test benches). It also does not mean that auditors will carry out a compliance audit. For the term "environment" the definition of ISO 14001:2015 is taken.
7. Wherever the product development process does not ensure compliance with applicable US environmental laws and regulations, BV will provide recommendations for corrective action.

C. Therefore, BV will evaluate the relevant EMS elements which are necessary to ensure compliance with US environmental laws and regulations for vehicles applicable to the product development process. The following EMS elements are relevant and will serve as the audit criteria:

1. Clause 4.1 (Understanding the organization and its context) – have the VW defendants identified external and internal issues that could affect the ability of the EMS to fulfil compliance obligations with regard to US environmental laws and regulations for vehicles?

Does the organization have a high-level, conceptual understanding of the internal and external issues that can affect, either positively or negatively, its ability to achieve the intended outcomes of its Environmental Management System (EMS) and specifically fulfil compliance obligations with regard to US environmental laws and regulations for vehicles?



AUDIT CRITERIA

Remarks: Stakeholder (DoJ, EPA, CARB ...) Analysis of the related parties i.e. customers, regulators, suppliers, nongovernmental organizations to be considered.

2. Clause 4.2 (Understanding the needs and expectations of interested parties) – what processes do the VW Defendants have to understand the needs/expectations of US legal and regulatory bodies; which of those needs/expectations are US environmental laws and regulations (compliance obligations) relevant to the product development process?
 - a) Has the organization determined the roles and responsibilities within the EMS and its scope to ensure compliance?
 - b) Has the organization effectively considered the following prior to determining the scope of the EMS?
 - c) The extent of organization's control and influence, context, external and internal issues, compliance obligations, physical and functional boundaries, activities, products and services?
 - d) Has the organization made its scope in relation to ensuring compliance with US legislations available to all interested parties as documented information?

Remarks: project organization, performance specification, identification of compliance obligations

3. Clause 5.1 (Leadership) – is the top management of the VW Defendants (those responsible for the product development process) demonstrating leadership and commitment for compliance with US environmental laws and regulations?

How is it evident that Top Management is committed to EMS and shows leadership?

- a) Is top management demonstrating accountability for the effectiveness of the EMS?
- b) Are the environmental policy and objectives established, and compatible with the strategic direction, US compliance requirements and the context of the organization?
- c) Is top management involvement evident?
- d) Does top management ensure that the EMS requirements are integrated into the organization's business processes?
- e) Does top management ensure the availability of resources needed for the EMS?
- f) Does top management communicate the importance of effective environmental management and of conforming to the EMS requirements?
- g) Does top management ensure that the EMS achieves its intended outcome(s)?
- h) Does top management direct and support persons to contribute to the effectiveness of the EMS?
- i) Does top management promote continual improvement (means: ensuring that the resources needed for the environmental management system are available;
- j) Does top management support other relevant management roles to demonstrate their leadership in their areas of responsibility, when applicable?

Remarks: The understanding of environmental issues related to US compliance obligations has to be promoted and realized in the organization.

4. Clause 5.2 (Environmental Policy) – does the Environmental Policy include a commitment to fulfil US compliance obligations?

Seek objective evidence for top management's involvement in establishing, implementing and maintaining an environmental policy.



AUDIT CRITERIA

- a) Is the policy appropriate to the defined scope, purpose, and context of the organization, including the nature, scale and environmental impacts of its activities, products and services?
 - b) Does the policy provide a framework for setting environmental objectives?
 - c) Does the policy include a commitment to protection of the environment, covering prevention of pollution and other specific commitments relevant to the context of the organization?
 - d) Does the policy include a commitment to fulfill the compliance obligations, such as US regulations?
 - e) Is the policy communicated within the organization, to all persons doing work (directly or indirectly) under the organization's control?
 - f) Is the policy made available to interested parties?
5. Clause 5.3 (Organizational Roles, Responsibilities and Authorities) – are roles, responsibilities and authorities clearly defined and understood for complying with US environmental laws and regulations along the PDP?
- In order to facilitate effective environmental management:
- a) Does top management ensure that the roles and their relevant responsibilities and authorities are assigned and communicated within the organization to ensure that;
 - b) EMS conforms to the requirements of the ISO14001:2015 standard?
 - c) Performance of the EMS, including environmental performance including compliance with US environmental laws and regulations, is reported to top management?
6. Clause 6.1.1 (General) Risk and Opportunities - have the Volkswagen Defendants determined risks and opportunities associated with noncompliance with US environmental rules and regulations for vehicles?
- a) What process has been developed to identify risks and opportunities?
 - b) Is it evident that the organization has considered its context, relevant requirements of their relevant interested parties and their defined scope when planning for the EMS?
 - c) Does the organization maintain documented information on its risks and opportunities, and are the processes needed documented to the extent necessary to be sure they are carried out as planned?
 - d) Has the organization determined the risks and opportunities that need to be addressed to: give assurance that the EMS can achieve its intended outcome(s)? prevent, or reduce, undesired effects, including the potential for external environmental conditions to affect the organization?
7. Clause 6.1.3 (Compliance Obligations) – what processes do the VW Defendants have to identify, assess and evaluate the applicability of US environmental laws and regulations for vehicles? These processes include communication with the authorities.
- a) Does the organization determine and have access to the compliance obligations related to its environmental topics?
 - b) Does the organization determine how its compliance obligations apply to the organization?
 - c) Does the organization take its compliance obligations into account when establishing, implementing, maintaining and continually improving its environmental management system?
 - d) Does the organization maintain documented information of its compliance obligations?
 - e) Does the organization have processes to identify applicability of US environment laws and regulations?



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8. Clause 6.1.4 (Planning Action) – through its planning processes, how do the VW Defendants take action to comply with US environmental laws and regulations for vehicles?
- Has the organization planned to:
 - Take actions to address its compliance obligations (homologation including testing and approval)
 - Integrate and implement the actions into its EMS processes or other business processes?
 - Evaluate the effectiveness of these actions?
 - When planning these actions, does the organization consider its technological options and its financial, operational and business requirements?
9. Clause 7.2 (Competence) – how do the VW Defendants ensure that those persons involved in complying with US environmental laws and regulations for vehicles are competent?
- How does the organization determine the necessary competence of person(s) doing work under its control that affect its compliance with US environmental legislations?
 - How does the organization ensure that persons doing the job are competent? What is the basis for their competency? (e.g. appropriate education, training, or experience)
 - How does the organization determine training needs associated with its environmental obligations and its EMS?
 - How does the organization take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken (where applicable)?
 - Has the organization retained appropriate documented information has evidence of competence (e.g. competence matrices)?
10. Clause 7.3 (Awareness) – Are those responsible for assuring compliance with US environmental laws and regulations for vehicles aware of their duties and the implications of not complying?
- Are the persons doing work under the organization's control aware of the organization's environmental policy, any objectives that are relevant to them, how they are contributing to the effectiveness of the EMS and what the implications are of them not conforming to EMS requirements?
- Remarks: training of involved project team members
11. Clause 7.5.3 (Control of Documented Information) – how do the VW Defendants control documents and records associated with compliance with US environmental laws and regulations for vehicles? This includes updates of US laws and regulations.
- Is the documented information controlled in order to ensure that it is available where needed and that it is suitable for use?
 - Is it adequately protected against improper use, loss of integrity and loss of confidentiality?
 - For the control of documented information; - Does the organization address distribution, access, retrieval and use of documented information?
 - Is there a process for control of changes (version control), storage and preservation (including preservation of legibility), retention and disposition of documented information?



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- e) Has the organization identified and established controls for any documented information of external origin that it considers necessary for the planning and operation of the organizations' EMS?
12. Clause 8.1 (Operational Planning and Control) – a) do the VW Defendants have documented operational control procedures in place to ensure that product development activities are carried out in a way that ensures compliance with US environmental laws and regulations for vehicles? b) do the VW Defendants have a Management of Change process to ensure continued compliance with US environmental laws and regulations for vehicles and when changes occur within the product development process?
- a) In order to meet requirements of EMS and to address the issues determined in 6.1:
- How does the organization plan, implement and control processes?
 - What criteria are established for the processes?
- b) In accordance with the above criteria, are controls implemented on the processes, to prevent deviation from the environmental policy, environmental objectives and compliance obligations?
- c) Does the organization control planned changes and review the consequences of unintended changes, taking action to mitigate any adverse effects, as necessary?
- d) Has the organization ensured that outsourced processes are controlled or influenced? Are the type and degree of control or influence to be applied to these processes are defined within the EMS?
- e) To make the control processes consistent with a life cycle perspective, has the organization:
- determined environmental requirements for the procurement of products and services, as appropriate?
 - established controls to ensure that environmental requirements are considered in the design process for the development, delivery, use and end-of-life treatment of its products and services, as appropriate?
 - communicated relevant environmental requirement(s) to external providers, including contractors?
 - considered the need to provide information about potential significant environmental impacts during the delivery of the products or services and during use and end-of-life treatment of the product?
- f) Does the organization maintain documented information to the extent necessary to document that the processes have been carried out as planned?
13. Clause 9.1.1 (General – Monitoring, Measurement, Analysis and Evaluation) – do the VW Defendants have processes to monitor, measure (e.g. testing, certifying), analyse and evaluate its compliance with US environmental laws and regulations for vehicles?
- a) Is the organization monitoring, measuring, analyzing, and evaluating its environmental compliance?
- b) Has the organization determined what to monitor and measure?
- c) In order to ensure valid results; has the organization determined the methods for its monitoring, measurement, analysis and evaluation, as applicable?
- d) Are there any criteria determined by organization against which, it will evaluate its environmental compliance, using appropriate indicators?
- e) Has the organization determined when monitoring and measuring shall be performed?
- f) Is it determined when the organization shall analyze and evaluate the results from monitoring and measurement?
- g) Does the organization ensure that the equipment used for its monitoring and measurement are calibrated, verified and maintained as appropriate?



AUDIT CRITERIA

- h) Does the organization evaluate its environmental compliance and the effectiveness of the EMS?
- i) Does the organization retain appropriate documented information as evidence of the monitoring, measurement, analysis and evaluation results?
- j) Is the information relevant to organization's environmental performance being communicated both internally and externally, as determined by organization's communication process and as required by its compliance obligations?

14. Clause 9.1.2 (Evaluation of Compliance) – do the VW Defendants have a process to evaluate its compliance with US environmental laws and regulations for vehicles [identical like 9.1.1]?

- a) Are there any processes planned, implemented and maintained by the organization to evaluate fulfillment of its compliance obligations? Please provide the process descriptions.
- b) Is the frequency of compliance evaluation determined by the organization?
- c) Does the organization evaluate compliance and take action if needed?
- d) Is the knowledge and understanding of the compliance status, being maintained by the organization?
- e) Is the evidence of the compliance evaluation result(s) being retained as documented information by the organization?

15. Clause 9.2 (Internal Audit) – do the VW Defendants have an internal audit process which evaluates the EMS?

- a) Are internal auditors competent to check whether the EMS assures compliance with US environmental laws and regulations for vehicles?
- b) Does the organization conduct internal audits at planned intervals to provide information on whether the EMS:
 - Conforms to the organization's own requirements for its EMS and the requirements of ISO 14001:2015?
 - Is effectively implemented and maintained?
 - Has the organization planned, established, implemented and maintained audit program(s), to include the frequency, methods, responsibilities, planning requirements and reporting of the audits?
 - Does the organization's internal audit program take into consideration the environmental importance of processes concerned, changes affecting the organization, and the results of previous audits?
 - Are the audit criteria and scope defined for each audit?
 - Are the objectivity and the impartiality of the audit process ensured during the auditors' selection and conducting audits?
 - Are the results of the audits reported to relevant management?
 - Are the audit results and other evidence of the implementation of the audit program retained as documented information by organization?

16. Clause 9.3 (Management Review) – do the VW Defendants have a management review process which includes review of compliance with US environmental laws and regulations for vehicles and their evolution?



AUDIT CRITERIA

- a) Has the top management reviewed the organization's EMS, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness?
- b) Is the status of actions from previous management reviews considered during management review?
- c) Does the management review consider the changes in:
 - external and internal issues that are relevant to the EMS?
 - compliance obligations of interested parties?
 - risks and opportunities?
- d) Does the management review consider the extent to which objectives have been met?
- e) Does the management review consider the information on the organization's environmental performance, including trends in:
 - nonconformities and corrective actions?
 - monitoring and measurement results?
 - compliance obligations fulfillment?
 - audit results?
- f) Is adequacy of resources considered in the management review?
- g) Are the communications from interested parties considered in the management review? Does it also include complaints?
- h) Does the management review consider opportunities for continual improvement?
- i) Do the outputs of the management review include:
 - conclusions on the continuing suitability, adequacy and effectiveness of the EMS?
 - decisions related to continual improvement opportunities?
 - decisions on any need for changes to the environmental management system, including resource needs?
 - actions if needed, when objectives have not been met?
 - opportunities to improve integration of the environmental management system with other business processes, if needed
 - any implications for the strategic direction of the organization?
- j) Does the organization retain documented information as evidence of the results of management reviews?

17. Clause 10.2 (Nonconformity and Corrective Action) – do the VW Defendants have a process for investigating root causes of nonconformities and addressing them through a corrective action system?

18. Clause 10.3 (Continual Improvement) – how can the VW Defendants demonstrate that it is actively working to improve its processes for complying with US environmental laws and regulations?

Remark: a timescale of actions that improve the management system related product development process should be demonstrated



AUDIT CRITERIA

D. As part of this assignment, BV is required to:

1. Evaluate the relevance of Volkswagen Group of America Chattanooga Operations, LLL
2. Prepare an individual audit report for each legal entities (Volkswagen AG, AUDI AG, Volkswagen Group of America) for 2017, 2018 and 2019
3. Identify deviations (major/ minor)
4. For each deviation (major/ minor), provide recommendations for corrective action
5. Identify opportunities for improvement (no corrective actions are required)
6. Work directly with VW Defendants to resolve any disagreements that may arise during the audits regarding scope, interpretation, criteria, applicability, etc.

Update: 23.10.2017

Signature

Signed version

Date: 23.10.2017

10/11/2017

Signed version

ATTACHMENT 3: Ingolstadt Audit Plan (1/2)

Date	Topic	Type of Topic		Objectives to be planned (aligned with the audit objectives given for the audit)	Departments involved	Clause 11.1 (Documentation of external audits)	Clause 11.2 (Documentation of external audits)	Clause 11.3 (Internal Audits)	Clause 11.4 (Documentation of external audits)	Clause 11.5 (Internal Audits)	Clause 11.6 (Documentation of external audits)	Clause 11.7 (Internal Audits)	Clause 11.8 (Documentation of external audits)
		Internal	External										
17-Nov	09:00 - 10:00	Opening meeting											
	10:00 - 11:00	Environmental affairs		Details of the EMS system, responsibilities, internal audit planning, qualification of internal auditors.	Auditors	X		X				X	
	11:00 - 11:15	Intermediate auditor meeting											
	11:15 - 11:30	Break											
	11:30 - 11:45	Research and development		Management responsibilities	Auditors	X		X					
	11:45 - 12:00	Intermediate auditor meeting											
	12:00 - 12:15	Product Emergency Process		Strategy plan (PPAP, product strategy, waste management, law fulfilment compliance)	Auditors	X		X					
	12:15 - 12:45	Auditor preparation for final audit meeting											
	12:45 - 13:00	Final audit meeting 1st audit											
	13:00 - 13:15	Product Emergency Process (Cont.)		[see above]	Auditors	X		X					
18-Nov	09:00 - 09:30	Opening meeting											
	09:30 - 10:00	Technical Conformity, incl. Control of vehicle tests and updates		AECI process, homologation/audit certification, Change management, OETS, OEO, registration, maintenance, field/stand stands	Auditors	X		X					
	10:00 - 10:15	Intermediate auditor meeting											
	10:15 - 10:30	Break											
	10:30 - 10:45	Technical Conformity, incl. Control of vehicle tests and updates (Cont.)		[see above]	Auditors	X		X					
	10:45 - 11:00	Intermediate auditor meeting											
	11:00 - 11:15	Break											
	11:15 - 11:30	Technical Conformity, incl. Control of vehicle tests and updates (Cont.)		[see above]	Auditors	X		X					
	11:30 - 11:45	Intermediate auditor meeting											
	11:45 - 12:00	Final audit meeting 2nd audit											
21-Nov	09:00 - 09:15	Opening meeting											
	09:15 - 09:30	Powertrain development		Operation implementation of powertrain & test	Auditors	X		X					
	09:30 - 09:45	Auditor preparation for final audit meeting											
	09:45 - 10:00	Final audit meeting 2nd audit											
	10:00 - 10:15	Powertrain development (Cont.)		[see above]	Auditors	X		X					
	10:15 - 10:30	Intermediate auditor meeting											
	10:30 - 10:45	Break											
	10:45 - 11:00	Powertrain development (Cont.)		[see above]	Auditors	X		X					
	11:00 - 11:15	Intermediate auditor meeting											
	11:15 - 11:30	Final audit meeting 2nd audit											

