Environmental Management System – Audit Report

Reference No: 1-5784784926_BKL_2018

Volkswagen AG
Wolfsburg, Germany

Visit Date: September 25th-29th, 2018
Date of report: December 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.

This Audit report can only be relied upon by Volkswagen and the Department of Justice in conjunction with the Third Partial Consent Decree no other third party may rely upon this report. This report shall only be reproduced in its entirety.

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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 Volkswagen AG, Wolfsburg, Germany, and therefore the term Volkswagen 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 Start of Production (SOP) 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), in Auburn Hills, Michigan.
- Test Center California (TCC), Oxnard, California will be audited in March 2019 due to their emissions testing responsibilities

Bureau Veritas Group is a world leader in testing, inspection and certification services. Created in 1828, the Group has more than 75,000 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. For the 2018 audits, audit team consisted of Engelbert (Lead Auditor), Anne (Auditor, Expert for US environmental law), and Philippe (Senior Vice President Technical

Quality and Risk, Bureau Veritas). 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 as applied to the PDP 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 of Volkswagen's PDP using an industry-recognized EMS standard as a guideline and to evaluate the effectiveness of the system to fulfill compliance obligations 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	X
7.2	Competence	X
7.3	Awareness	X
7.4	**Communication**	
7.4.1	General	X
7.4.2	Internal Communication	X
7.4.3	External Communication	X
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 Minor or Major, depending on its seriousness or occurrence. In addition, Opportunities For Improvement (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
Major Deviation	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 Deviation	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 Volkswagen AG. 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 Wolfsburg 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 Volkswagen AG, reviewed and documented accordingly.

The audit plan included an evaluation of the operation of the emission test benches that was conducted on September 28, 2018. The scope of this portion of the audit was to 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 as of the first BV Audit conducted in 2017, and were a result of an in-depth internal Task Force investigation that was conducted in October 2015.

Since the 2017 BV audit, further actions have been implemented, and some are in different stages of implementation with defined targets for completion, therefore, development and implementation of some management system elements and applicable ISO 14001:2015 clauses will require a more detailed review in the 2019 Bureau Veritas audit to further evaluate effectiveness. In these instances, the audit team estimated to what degree specific elements had been implemented and evaluated effectiveness of the newly developed processes based on the available evidence. If an element of the management system has not been fully implemented or there was not yet evidence of its effectiveness, Bureau Veritas is recommending that this area be an area of focus for the 2019 audit (See Section 9).

6.1 PDP Overview

The PDP defines the organizational processes and procedures used at Volkswagen 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 Volkswagen 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 conform to relevant regulations including US environmental laws and regulations. The VW brand PDP describes the tasks and responsibilities during product development including homologation and was most recently updated in September 2018.

In 2017, Volkswagen AG implemented a significant organization change to the PDP in the Technical Conformity (ET) function, which carries out the interpretation of US legal requirements independently of the subsequent development phases. The function of ET was established as a result of the Third Partial 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 Wolfsburg group organization. In addition, in 2018, two additional functions were added at the Group and Brand Level for interpretation of laws and regulations, VKO (coordinators of regulations) and VEX (regulation experts). VKOs provide the regulatory interpretation while VEXs assist in the technical implementation of the regulatory requirements.

EEO also interfaces with the relevant organizational units at Volkswagen Group level to communicate and coordinate the interpretation of US compliance obligations.

The vehicle emission data is provided by the test center in Wolfsburg 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. Prior to submittal to EEO and upon receipt of a Vehicle Book, as series of quality checks are conducted on the data to confirm accuracy and enhance accountability.

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.

6.2 Organization and Responsibilities

ET is a key function to ensure compliance with the US environmental regulations associated with vehicle emissions along with VKO and VEX. 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 which includes compliance with applicable laws and regulations.

The ET organization responsible for homologation 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 function are documented and described in the TAR job description which can include descriptions for environmental related compliance responsibilities.

6.3 Test Benches

As part of the EMS Audit, Bureau Veritas conducted an in-depth evaluation of the emission test benches on September 28, 2018. 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, the test benches were 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 (ETA) for Test Registration, Analysis & Evaluation of Test Results activities.

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

- Conditioning of vehicles
- The calibration of the measuring equipment was verified
- Test Applications were standardized with orders coming from ETA
- Clear organizational independence from other organizational units
- Organizational interface to ETA was defined
- Operation in accordance with ISO / IEC 17025
- Calibration gas tracking system
- Test fuels
- Work Instruction for test bench operations was updated in 2018
- Software modifications

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. This process has been automated by the test program, thus additionally confirming traceability of the test data (software, controllers).

7.0 AUDIT RESULTS

There were no Major or Minor deviations identified against the applicable audit criteria and ISO 14001:2015 Standard clauses during the 2018 audit.

Bureau Veritas did review the deviations and corrective actions identified in the 2017 audit and have noted progress or current status below in Table 3.

Table 3: Status Update of 2017 Identified System Deviations and Corrective Actions

Finding	Rank	Clause	Description	Corrective Action/Recommendation
W-EMS-01	Minor	5.2 Environmental Policy	The environmental policy has been updated strengthening the responsibility for environmental compliance. This policy had not been finalized or formally published at the time of the audit.	The updated version of the Environmental Policy was updated and approved on 12/1/2017. **2018 Status Update:** *Corrective Action effective and complete*
W-EMS-02	Minor	9.1 Monitoring, Measurement, Analysis and Evaluation	Defined key process indicators related to the Environmental Management System do not consider the performance evaluation.	The following process indicators have been defined to assess the environmental management system: • Number of planned vs conducted audits • Number of major and minor deviations (per audit) • Number of improvements (per audit) • Review of open measures The KPIs listed above were included in the Environmental Management Report and shared with the Board. **2018 Status Update:** *Corrective Action effective and complete.*

Finding	Rank	Clause	Description	Corrective Action/Recommendation
W-EMS-03	Minor	9.2 Internal Audit	The independence of internal environmental auditors was not documented in the description of the work instruction for internal environmental audits so the independence of the internal audit completed in 2016 could not be fully ensured.	The independence for the execution of the internal audits is now formally defined in a work instruction/process standard published in 2018. Audits were conducted in 2018 utilizing the updated process standard. **2018 Status Update:** *Corrective Action effective and complete*

In addition, as part of the audit, Bureau Veritas identified processes in place that could be considered strengths or Best Practices (Section 7.2) and have also provided detailed recommendations as Opportunities for Improvement (OFIs) shown in Table 5 under Section 7.1 below.

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 opportunities for improvement identified during the audit.

7.1 Suggested Opportunities For Improvement:

As part of the 2017 EMS audit, some opportunities for improvement were raised that VW AG voluntarily implemented. Table 4 below presents the implementation status of OFIs raised in 2017.

Table 4: Implementation Status of OFI raised in 2017

Opportunity for Improvement Recommendation	Implementation Status
Consider simplifying the release of process descriptions (documents).	This is an ongoing process related to the organization.
Consider standardizing process descriptions.	Process descriptions have been standardized and will continue to be standardized as new processes are developed.

Consider integrating the training measures for newly staffed positions by developing a general training plan for changes in the organizational structure.	Newly staffed positions are now systematically trained within the mandatory EMS Awareness Training which has been extended.
Consider further standardizing organizational charts in order to clearly depict transparent information and communication channels.	Every department has access to standardized organizational charts.
Consider increasing the number of EMS auditors.	EMS auditors have been trained to add to the auditor pool and this action was key to increasing the number of auditing activities from 2017 to 2018.
Consider translating the regulatory database, which is presently available only in German, into English.	The regulatory database (GETEX) now considers the English context.

During the 2018 audit, additional opportunities for improvement recommendations were raised and shared with Volkswagen AG for consideration (see Table 5).

Table 5: Opportunities For Improvement Recommendation

Current Process/Procedure	Opportunity for Improvement Recommendation
At the Test Bench, software modifications are tracked, but there is not currently a clearly documented procedure for qualifying or verifying accuracy of emission calculation software when it is updated.	Consider creating a Work Instruction that explicitly outlines the required steps for qualifying any software update or change for the emission calculations at the Test Bench.
The GETEX database is the primary source of updated regulatory information including current US regulations and internal regulatory interpretations. The same information is also saved on the K-GEAG intranet sites but there is not a formal process for assuring it is maintained.	Consider enhancing the document control between GETEX and K-GEAG Intranet Sites and link K-GEAG to GETEX instead of maintaining duplicate information.
An Executive Office was established to provide an escalation framework for VKO and VEX, but because of current staffing levels, the Executive Office was temporarily managed by K-GEZ. ETB will manage the executive office.	K-VKO Executive Office implementation should be followed through once staff is put in place.
EMS internal audit corrective action tracking is done using Excel and does not have the capability of sending reminders or automatically tracking due date adherence.	Consider improving EMS internal audit finding tracking to include notifications to responsible parties, due date tracking, and KPI tracking. VW AG will be piloting a software solution in 2019.

VW plans to take on responsibility for all homologation activities for any VW brand vehicle, independent from engine development responsibility. A clear project plan had not been developed to assure there was clear understanding of this change between VW and Audi.	Consider developing a project plan to outline clear work tasks identified for the transfer between Audi and VW for homologation.
The most recent Management Review did not contain information related to environmentally relevant information from the PDP. Milestone tracking is being done, but this information was not part of the Management Review.	Consider adding content to the Management Review related to performance of PDP processes and the effectiveness.
Environmental cases or information related to environmental issues that are brought forward through the Whistleblower process are not formally summarized or provided to the EMS team.	Consider better defining the interface between EMS and the Whistleblower process to assure relevant environmental information is communicated to EMS team.
Regulatory Deficiencies approved by the US regulatory authority California Air Resource Board (CARB) are not stored in a centralized location. The information is stored both by EEO and in Wolfsburg.	Consider centralizing the management of the CARB Deficiency data and making it accessible to both Wolfsburg and EEO to ensure the same information and most recent information is readily available.

7.2 Best Practices

As part of the audit, the following points were rated as a good solution for optimizing the PDP at Volkswagen AG, Wolfsburg:

- The use of the word “Compliance” within VW has been enhanced
- Tracking of PDP Milestones and weekly reporting
- Establishment of VKO/VEX
- Regulatory Exchange Group
- Investment of additional Test Benches
- VW has made improvement in their interfaces with EEO
- Roll-out of mandatory training for ET existing and new employees
- Lessons Learned evaluations by each Technical Development department
- Increase of EMS internal audit activities from 2017 to 2018
- Progress on GETEX translations into English
- Clear delegation of authorities (TARs) for departments throughout Technical Development
- More incorporation of the “Lifecycle” view of the product within the EMS and throughout the PDP

8.0 CONCLUSIONS

Overall, the EMS for the PDP at Volkswagen 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 continue to be modified and optimized and their implementation continues to progress. As shown in Table 5 above, Bureau Veritas has identified opportunities for improvement where Volkswagen AG can potentially improve the effectiveness of the EMS.

Taking into consideration the timeline of the PDP (several years) and the implementation of the revised version, which was reviewed as part of this 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 were assessed and underwent random sampling. No deviations from the specifications were observed. The vehicles that were approved for sale in the US (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 Volkswagen vehicles meet all applicable US emissions laws or regulations.

Based on the audit, Volkswagen 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 Volkswagen AG's EMS through follow-up audits scheduled in 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 2019:

- Presentation of the status of changes from the 2018 audit until the next scheduled audit in 2019
- Release of any newly implemented processes and their evaluation in terms of goals and effectiveness
- Update on any OFIs that were considered and implemented
- Increase in specific examples of processes related to vehicles developed for sale in the US
- Verification and review of EMS Management Review
- Changes in the laboratory from 2018 to 2019

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 1: Resume of audit team – Philippe

Job history

36 years of experience
Since 1987 various operational, managerial positions within Bureau Veritas
Since 2013 Senior Vice President Technical, Quality & Risk for I&F Division since February 2013 (Revenue 2.5 B€)
President and Managing Director of Bureau Veritas Certification Holding

PROFESSIONAL QUALIFICATIONS and TRAINING

Automotive experience:

- Development of FIEV production process audit methodology applicable to the automotive industry (Leading the FIEV working group)
- Performance of various process audit training by automotive equipment manufacturers (FAURECIA, SAFRAN, MAGNETTI MARELLI, EATON, VALEO …)
- Performance of various audits in automotive sector against QS9000/EAQF 94 (FAURECIA, EATON, DELPHI …)
- Management of IATF accreditation

Environmental experience:

- Director of HSE consulting activities from 2001 to 2004
- Project Director to assist AIRBUS to implement a product/site environmental management system globally in Europe (3 M€)

Auditing skills:

- Lead auditor (IRCA) in ISO 9001, ISO/TS 16949, EN 9100
- Lead auditor ISO 17020, ISO 17021 & ISO 17025 standards

EDUCATION

- Graduate Engineer (Mechanical and Metallurgical Engineering) - Ecole Centrale de Paris (France) (1978 - 1981)
- Executive Master Business of Administration (Institut français de Gestion) (1992 - 1994)

LANGUAGES

- French (mother language)
- English

ATTACHMENT 2: Audit Criteria

REVISED 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?
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 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.
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?

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?
a) 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?
b) 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?
a) How does the organization determine the necessary competence of person(s) doing work under its control that affect its compliance with US environmental legislations?
b) 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)
c) How does the organization determine training needs associated with its environmental obligations and it's EMS?
d) How does the organization take actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken (where applicable)?
e) Has the organization retained appropriate documented information has evidence of competence (e.g. competence matrics)?

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 7.4 (Communication); clause 7.4.1 (General) – what processes do the VW Defendants have to implement to manage external and internal communication related to Environmental Management System and compliance of vehicles against US environmental laws and regulations?

In particular how the VW Defendants ensure consistency and reliability of communication against the information provided through the operations of environmental management system?
Are there appropriate records of such communication?

12. Clause 7.4.2 (Internal communication) – How does the top management of the VW Defendants (those responsible for the product development process) communicate about environmental management system (policy, objectives, achievements, processes and procedures …) throughout the organization including supply chain if appropriate?
How is this communication used to contribute to continual improvement?

13. Clause 7.4.3 (External communication) – How have the top management of the VW Defendants (those responsible for the product development process) define process for external communication (To whom, what, when, how …). In particular relating to Authorities and other stakeholders (Consumer association, NGOs, …) what is the process to communicate information as required by US environmental laws and regulations?

14. 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.
a) Is the documented information controlled in order to ensure that it is available where needed and that it is suitable for use?
b) Is it adequately protected against improper use, loss of integrity and loss of confidentiality?
c) For the control of documented information; - Does the organization address distribution, access, retrieval and use of documented information?
d) Is there a process for control of changes (version control), storage and preservation (including preservation of legibility), retention and disposition of documented information?
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?

15. 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?

16. 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?
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?

17. 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?

18. 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?

19. 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?
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?

20. 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?

21. 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

D. <u>As part of this assignment, BV is required to:</u>

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.

ATTACHMENT 3: Wolfsburg Audit Plan (1/2)

Day	Start	Stop	No.	Issue / Topic	Department involved
Day 1 24/09	08:00	09:00		Opening meeting: Objectives and scope of the audit, audit team presentation, confirmation of planning & logistics, reminder on NCR/OFI, presentation of audit process (daily debriefing, clarification meeting on last	K-GERU
	09:15	10:45	1.1	Organisation and Processes (within the scope PDP/EMS) changes including any changes in the Handbook of Golden rules PEP Update 2017/2018 Implementation of EMS, Documentation of changes and related communication This topic will be covered for the different departments involved in EMS related to PDP	EX22 + GSO2/ K-GEAX/ K-GBS
	11:00	12:00	1.1 cont'd	Organisation and Processes (within the scope PDP/EMS) changes including any changes in the Handbook of Golden rules PEP Update 2017/2018 Implementation of EMS, Documentation of changes and related communication This topic will be covered for the different departments involved in EMS related to PDP (continued)	EX22 + GSO2/ K-GEAX/ K-GBS
	12:45	14:15	1.2	Group wide process - Interpretation of laws Process general	K-GEZ
	14:30	16:00	1.3	Brand wide process - Interpretation and input of laws (VKO/VEX) - new internal process standard; Process operational Part X following V quality cycle (detailed vehicle project/process to be defined)	ETB
	16:30	17:00		Feed back meeting 1st audit day (including potential non conformity, clarification or documentation request ...)	Auditors + Representatives of departments interviewed during the audit
	17:00	18:00	1.4	ET - Technical conformity Update 2017/2018	ET
Day 2 25/09	08:00	08:30		Opening meeting (confirmation of planning, logistics ...)	K-GERUP
	08:30	10:30	2.1	Group wide process - Interpretation and input of laws (VKO/VEX); Process operational Part 1 - Exhaust emissions/ fuel consumption (Abgas/Kraftstoffverbrauch) - Update 2017/2018	K-GEAG
	11:00	12:30	2.2	Process for cascading environmental laws and regulations related to vehicle emissions into the design and development specifications of the product (one model) following V quality cycle including detailed/specific VKO/VEX process - Part 2 (example: Fuel tank emissions)	EFAT
	13:30	15:00	2.3	(US or other) vehicle project to be defined	G1
	15:30	17:00	2.4	EMS Internal audit (PDP scope) Auditor independence and qualification Corrective action process	K-GERUP
			2.5	Review of effective implementation of corrective actions related to findings from previous BV audit	K-GERUP
	17:30	18:00		Feed back meeting 2nd audit day (including potential non conformity, clarification or documentation request ...)	Auditors + Representatives of departments interviewed during the audit

ATTACHMENT 3: Wolfsburg Audit Plan (2/2)

Day 3 26/09	08:00	08:30		Opening meeting (confirmation of planning, logistics ...)	K-GERUP
	08:30	10:30	3.1	Powertrain Development following V quality cycle	EAOM
				Process for cascading environmental laws and regulations related to vehicle emissions into the design and development specifications of the product (one model) - part 2 - including purchasing (following V quality cycle)	EAOM
	11:00	13:00	3.2	ETA- Technical Conformity Homologation powertrain NAR environment laws incl. interface to VWGoA (EEO) for vehicles to be certified for sale in the United States	ETA
	15:00	17:00	3.3	Vehicle Compliance - self-certifying for the US market	ETG
	17:00	17:30		Feed back meeting 3rd audit day (including potential non conformity, clarification or documentation request ...)	Auditors + Representatives of departments interviewed during the audit
Day 4 27/09	08:00	08:30		Opening meeting (confirmation of planning, logistics ...)	K-GERUP
	08:30	09:45	4.1	Whistleblower process	K-ICW
	10:00	11:30	4.2	Management review and related communication Reporting structure, Information flow within VW about compliance obligations and communication	K-GERUP
	13:00	14:00	4.3	Management Board Hr. Welsch	E
	14:30	17:00	3.3	Lay out Emision Test Center, choice of emision test	EAPF
	18:00	18:30		Feed back meeting 4th audit day (including potential non conformity, clarification or documentation request ...)	Auditors + Representatives of departments interviewed during the audit
Day 5 28/09	08:00	08:15		Opening meeting (confirmation of planning, logistics ...)	K-GERUP
	08:15	09:30		Clarification and closure of open items Draft conclusion of the audit Agreement on wording of NCR and on related actions	
	09:30	12:00		Auditor peparation for closing meeting and audit report	Auditors
	13:00	14:30		Audit conclusion final preparation and sharing of messages/information disseminated during closing meeting	Auditors + EMS department
	14:30	15:30		Final closing meeting (presentation of audit results - Strength, weaknesses, OFI, Good practises, NCR - reminder on the process for corrective action and associated timeline)	Auditors + Representatives of departments interviewed during the audit