California Environmental Protection Agency
Air Resources Board

Proposed Regulation to Implement the California Cap-and-Trade Program

APPENDIX C

STAFF REPORT AND COMPLIANCE OFFSET PROTOCOLS

LIVESTOCK PROJECTS
OZONE DEPLETING SUBSTANCES PROJECTS

Release Date: July 29 , 2014

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State of California
California Environmental Protection Agency
AIR RESOURCES BOARD
Stationary Sources Division

STAFF REPORT: INITIAL STATEMENT OF REASONS
PROPOSED REGULATION TO IMPLEMENT
THE CALIFORNIA CAP-AND-TRADE PROGRAM

APPENDIX C

STAFF REPORT AND COMPLIANCE OFFSET PROTOCOLS

LIVESTOCK PROJECTS
OZONE DEPLETING SUBSTANCES PROJECTS

Public Hearing to Consider the Proposed Regulation
to Implement the California Cap-and-Trade Program

Date of Release: July 29, 2014
Scheduled for Consideration: September 18 and 19, 2014

Location:

California Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

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I. INTRODUCTION AND BACKGROUND ON COMPLIANCE OFFSET PROTOCOLS

A. Staff Proposal

Staff is recommending the Board adopt updated Compliance Offset Protocols for Livestock Projects and Ozone Depleting Substances Projects to fulfill the Board's direction to the Executive Officer in Resolution 11-32 "to monitor protocol development and to propose technical updates to adopted protocols, as needed." This Appendix discusses the updates to the Compliance Offset Protocols for Livestock and Ozone Depleting Substances (ODS) projects.

B. Rationale for Compliance Offset Protocols

Under the Cap-and-Trade Program, covered entities may use ARB offset credits to satisfy up to eight percent of their compliance obligation. This limit applies to each individual covered or opt-in covered entity for each compliance period. ARB offset credits are tradable credits that represent verified greenhouse gas (GHG) emission reductions or removal enhancements from sources not subject to a compliance obligation in the Cap-and-Trade Program and resulting from one of the following: (1) a project undertaken using an Air Resources Board (ARB or Board) approved Compliance

Offset Protocol pursuant to Subarticle 13 of the Cap-and-Trade Regulation; (2) an offset credit issued by a linked jurisdiction pursuant to Subarticle 12 of the Cap-and-Trade Regulation; or (3) a sector-based offset credit issued by an approved sector-based crediting program pursuant to Subarticle 14 of the Cap-and-Trade Regulation. These GHG sources are usually outside of the industrial, energy, and transportation sectors.

As required by Division 25.5 of the Health and Safety Code (Assembly Bill 32 or AB 32), any reduction of GHG emissions used for compliance purposes must be real, permanent, quantifiable, verifiable, enforceable, and additional (Health and Safety Code §38562(d)(1) and (2)). Any offsets issued by ARB must be quantified according to Board-approved Compliance Offset Protocols. The Cap-and-Trade Regulation

(Regulation) includes provisions for collecting and submitting the appropriate monitoring documentation to support the verification and enforcement of reductions realized through the generation and retirement of ARB offset credits. The regulatory provisions and the requirements of the Compliance Offset Protocols will ensure that the reductions are quantified accurately, represent real GHG emission reductions, and are not double counted within the system. Compliance Offset Protocols are considered regulatory

documents and are made publicly available so that anyone interested in developing an offset project can do so if their project meets Board-approved standards.

C. Board Adoption of Compliance Offset Protocols

At its October 20, 2011 meeting, the Board adopted four Compliance Offset Protocols, including protocols for Livestock Manure (digester) Projects, Ozone Depleting Substances (ODS) Destruction Projects, Urban Forest Projects, and U.S. Forest Projects. Resolution 11-32, adopted by the Board on October 20, 2011, directed the Executive Officer "to develop implementation documents laying out the process for review and consideration of new offset protocols, including a description of how staff will evaluate additionality." This direction signaled the Board's intention to adopt additional Compliance Offset Protocols in the future. The Compliance Offset Protocol Review Process document is available at: http://www.arb.ca.gov/cc/capandtrade/compliance-offset-protocol-process.pdf. In 2014, the Board adopted a fifth Compliance Offset Protocol, the Mine Methane Capture Projects protocol.

D. Compliance Offset Protocol Structure and Regulatory Requirements

Compliance Offset Protocols consist of two main structural elements: project requirements and project quantification. Project requirements include items such as eligibility, monitoring and reporting, and verification and enforcement provisions. AB 32 requires ARB to adopt regulatory requirements for verification and enforcement of any offset reductions used for compliance purposes. Project quantification identifies the quantification methodologies and equations used in project accounting such as baseline determination and calculation of emissions and emission reductions.

The Cap-and-Trade Regulation includes offset program regulatory requirements, including but not limited to: eligibility criteria for start dates, project locations, offset project reporting periods, project document retention, project listing information, project reporting information, verification requirements, and enforcement provisions. Staff has updated the Compliance Offset Protocol for Livestock Projects and Ozone Depleting Substances Projects to be consistent with regulatory requirements in the Cap-and-Trade Regulation. Since Compliance Offset Protocols are used in the context of a compliance program, staff has included language in the proposed updates to the Compliance Offset Protocol for Livestock Projects, and Ozone Depleting Substances Projects to refer to the regulatory requirements in the Cap-and-Trade Regulation where needed rather than splitting the offset protocols into separate documents based on regulatory requirements and quantification methodologies. In sections that relate directly to a requirement in the Cap-and-Trade Regulation, text refers readers to the appropriate section(s) of the Regulation.

Updated Compliance Offset Protocols, including the proposed updates to the Compliance Offset Protocol for Livestock Projects and Ozone Depleting Substance Projects, will be incorporated by reference into proposed amendments to the Cap-and-Trade Regulation. This incorporation makes the offset protocol document an enforceable regulation. AB 32 exempts quantification methodologies from the Administrative Procedure Act (Government Code, section 11340 *et seq.*) (APA), however those elements of the Compliance Offset Protocol are still regulatory. The exemption allows future updates to the quantification methodologies to be made through a public review and Board adoption process but without the need for rulemaking documents. Each Compliance Offset Protocol identifies sections that are considered quantification methodologies and exempt from APA requirements. Any changes to the non-quantification elements of the Compliance Offset Protocols would be considered a regulatory update subject to the full regulatory development process pursuant to the APA.

E. Environmental Impacts

The California Environmental Quality Act (CEQA) and ARB policy require an analysis to determine any potentially adverse environmental impacts of any potential projects under the compliance offset program. When adopting the first four Compliance Offset Protocols in 2011, ARB determined that adoption and implementation of the Compliance Offset Protocols constitute “projects” as defined by Public Resources Code §21000 et seq. The CEQA Guidelines provides the definition of a project (Title 14, California Code of Regulations, §15378). The environmental analysis for the updated protocols can be found in Chapter V of this Appendix.

II. UPDATED COMPLIANCE OFFSET PROTOCOL FOR LIVESTOCK PROJECTS

A. Role of Livestock and Manure Digesters in Climate Change Mitigation

California is home to about 1,500 dairies with over 1.7 million dairy cows (CDFA 2013). The resulting manure is a significant source of methane that can be emitted to the atmosphere or captured and used for heat and/or energy. Manure treated and stored under anaerobic conditions decomposes to produce methane, which, if uncontrolled, is emitted to the atmosphere. This predominantly occurs when livestock operations manage waste with anaerobic liquid-based systems (e.g. in lagoons, ponds, tanks, or pits). Within the livestock sector, the primary drivers of methane generation include the amount of manure produced and the fraction of volatile solids that decompose anaerobically. Temperature and the retention time of manure during treatment and storage also affect methane production.

Manure digesters (also called biogas control systems) can be used to trap and collect methane from waste stored in anaerobic conditions. The trapping process is achieved by enclosing the manure, which often involves covering a manure lagoon with plastic or otherwise isolating the manure from the ambient environment. Methane captured through the installation and use of an anaerobic digester can have many uses including for electric power production, for heat, as an alternative to natural gas (whether for pipeline injection or on-farm use), or as a transportation fuel.

B. Update to the Compliance Offset Protocol for Livestock

The process of updating the Livestock Protocol included soliciting stakeholder input during two different workshops on March 17 and June 20, 2014. Stakeholders including industry experts, government agencies, project developers, Cap-and-Trade Program covered entities, academia, and the general public were encouraged to comment. ARB staff also incorporated lessons learned from implementing the current Compliance Offset Protocol and reviewing early action projects.

The Livestock Protocol stakeholder process began on March 17, 2014, when ARB staff held a public workshop to discuss the decision to update several Compliance Offset Protocols, including the Livestock Protocol. During this public stakeholder workshop, ARB invited interested members of the public to submit comments on the proposed updates and participate in the formal rulemaking process. Staff also had many individual interactions with stakeholders interested in discussing protocol related issues, and this staff proposal reflects those discussions.

As part of its update of this protocol, ARB staff reviewed its existing Livestock Protocol, publicly available documents from the U.S. EPA, and documents submitted by technical experts and other stakeholders. These documents are included in the reference section of this staff report, and are cited when relied upon for facts. The update to the Livestock Protocol modifies the existing Livestock Protocol and incorporates the best available science and information to ensure that emission reductions are real, permanent, quantifiable, additional, verifiable and enforceable.

A draft version of the Livestock Protocol was made publicly available in June 2014.

ARB staff solicited and incorporated input from stakeholders into the proposed version released along with this staff report for public review on July 29, 2014. The formal 45-day public comment period begins on August 1, 2014 and the new Compliance Offset Protocol along with the proposed amendments to the Regulation will be considered at the September 18 and 19, 2014 Board hearing.

Broadly, the types of updates made to the Livestock Protocol Adopted October 20, 2011 include:

- Reformatting the protocol to more closely follow standard regulatory format;
- Correcting typographical errors and mistakes that occurred when transitioning the protocol originally;
- Providing clarifications based on publicly released guidance from the first years of implementing the Compliance Offset Protocol; and
- Ensuring all equations are mathematically correct and variables well defined.

The following list provides specific changes made to the Livestock Protocol:

- Update fuel emission factors to be consistent with the Mandatory Reporting Regulation (CARB 2013b);
- Updated eGRID values to the latest release for the U.S. EPA;
- Updated volatile solids and typical annual mass values to the latest U.S. EPA data;
- Set the maximum value for the van't Hoff-Arrhenius factor to 0.95;
- Removed the hourly operational monitoring requirement for devises that have safety shutoff preventing fuel flow when not operational;
- Added baseline defaults for management system factor for solid separation;
- Updated missing data methodologies to specify how projects must replace missing data greater than 7 days;
- Clarify project listing date; and
- Clarification of digester type and cover type categories.

C. Description of the Compliance Offset Livestock (Manure Digester) Protocol

1. Overview

ARB's proposed revisions to the Compliance Offset Protocol Livestock Projects are based on the Livestock Protocol adopted by the Board October 20, 2011. The offset protocol is applicable to projects in the United States and United States Territories.

The Offset protocol identifies quantification methodologies to calculate the annual greenhouse gas benefits from capturing and destroying methane from anaerobic manure treatment and/or storage facilities on dairy cattle and swine farms. To fit into a statewide, national, and international GHG accounting framework, livestock manure digester project accounting must meet recognized and robust standards including the requirements of AB 32. This requires that GHG reductions be real, additional, independently verified, not double-counted, and permanent. The offset protocol is designed to meet these standards and requirements and provide accurate and standardized GHG accounting methods for complete, consistent, transparent, accurate, and conservative accounting GHG emissions and emission reductions associated with manure digester projects. The offset protocol also defines eligibility rules, offset project boundaries, provides GHG reduction and emission calculation methodologies, and identifies procedures for project monitoring, reporting parameters, and verification. All projects that pass the eligibility requirements set forth in this offset protocol and the cap-and-trade regulation are eligible to register GHG reductions for the duration of the project-crediting period, which is ten years.

2. Additionality

Eligible projects under this offset protocol must result in reductions that are additional to what would have occurred in the absence of the project. The offset protocol ensures additionality utilizing a performance standard approach and a regulatory additionality requirement.

The performance standard is an identified standard of performance applicable to all manure management projects. The purpose of a performance standard is to establish a threshold that is significantly better than average, business-as-usual greenhouse gas (GHG) emissions for a specified activity, which, if met or exceeded by a project developer, satisfies the additionality requirement. If the project meets the threshold, then it exceeds what would happen under the business-as-usual scenario and generates surplus/additional GHG reductions. This offset protocol uses a technology-specific threshold; sometimes also referred to as a practice-based threshold, where it serves as "best-practice standard" for managing livestock manure. Data shows that

California livestock operations (dairy, in particular) manage waste in a manner primarily in liquid-based systems that are very suitable for digesters. Yet, even in these favorable conditions, only 1% of California's dairies have digesters (EPA, 2014). This indicates that installing a bio-gas control system is above and beyond common practice and therefore installation of a bio-gas control system meets the performance standard.

In addition to the performance standard, eligible projects must show regulatory additionality, meaning that there are no state or federal regulations or local agency ordinances or rulings or mandates requiring the installation of a biogas control system. Projects must also comply with all applicable local, state, and national regulations, whether for air and water quality, energy regulations, or others.

3. Permanence

GHG reductions resulting from the installation of bio-gas control systems are permanent. The offset protocol requires that the biogas control system destroy captured methane gas that would otherwise have been emitted to the atmosphere in the absence of the project. Captured biogas can be destroyed on-site, or transported for off-site use (e.g. through gas distribution or transmission pipeline), or used to power vehicles. Regardless of how project developers take advantage of the captured biogas, the ultimate fate of the methane must be destruction.

4. Quantification Methodologies

The quantification method in the offset protocol is originally derived from the Kyoto Protocol's Clean Development Mechanism (ACM0010 V.2), the EPA's Climate Leaders Program (Draft Manure Offset Protocol, October 2006), and the RGGI Model Rule (January 5, 2007).

The calculation methodologies in the offset protocol include emissions and emission reductions from manure production, treatment, storage and disposal. The offset protocol covers direct emissions of methane (CH_4) and carbon dioxide (CO_2) associated with waste production, treatment and storage, and waste disposal including emissions associated with transporting manure. Emission calculations for direct CH_4 and CO_2 emissions associated with the project include variables such as animal mass, population, and ambient average temperature as well as variables related to the resulting biogas such as collection and destruction efficiencies. Quantifying the GHG impact associated with installing a BCS requires the use of both modeled reductions as well as the utilization of metered data from the BCS to be used as a check on the modeled reductions.

Because of the uncertainty in the calculation methodologies for determining nitrous oxide (N_2O) emissions associated with projects, these emissions or emission reductions are not included in the current offset protocol. In addition, the use of biogas for producing power for the electricity grid or electricity for on-site use, thereby displacing fossil-fueled power plant GHG emissions, is considered a complementary and separate GHG project activity and is not included within the offset protocol accounting framework.

5. Monitoring, Reporting, and Verification

Project developers are responsible for monitoring the performance of the project and operating each component of the biogas collection and destruction system in a manner consistent with the manufacturer's recommendations. The methane capture and control system must be monitored with continuous measurement equipment that directly meters project biogas every 15 minutes.

In addition, the operational activity of the destruction devices must be assured by hourly monitoring and documentation or safety devices to ensure actual methane destruction.

If for any reason the operation of the destruction device is not assured, then all metered biogas going to the particular device is assumed to be released to the atmosphere during the period of inoperability. The offset protocol also includes QA/QC requirements for measurement monitoring equipment including gas-flow meters and continuous methane analyzers.

Project developers must report GHG reductions resulting from project activities and submit verified emission reduction reports annually. For transparency, project information will be made publically available.

III. UPDATED COMPLIANCE OFFSET PROTOCOL FOR OZONE DEPLETING SUBSTANCES PROJECTS

A. Role of Destruction Ozone Depleting Substances Destruction in Climate Change Mitigation

Ozone depleting substances are chemicals that destroy the stratospheric ozone layer when released into the atmosphere. The production of these substances is being phased-out under the Montreal Protocol on Substances that Deplete the Ozone Layer. The Montreal Protocol incorporates two different phase-out schedules: one for developing countries listed in Article 5 of the agreement and another, more rapid phase-out, for non-Article 5 countries. Additionally, the U.S. has its own phase-out schedule that addresses the most potent ODS first.

In addition to destroying the ozone layer, ODS are thousands of times more potent in trapping heat in the atmosphere than carbon dioxide. Large quantities of ODS (e.g. chloroflurocarbons, hydrochloroflurocarbons, and halons) produced prior to phase-out deadlines under the Montreal Protocol remain legally in use or storage in older equipment, building and appliance insulation, and other "banks." Under business as usual, these banks will ultimately be released to the atmosphere. In 2010, annual emissions from banks were expected to be over 80 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) (UNEP, 2009) for the United States. A portion of these emissions can be eliminated through the collection and destruction of these gases.

B. Update to the Compliance Offset Protocol for Ozone Depleting Substances

The process of updating the Protocol included soliciting stakeholder input during two different workshops. Stakeholders including industry experts, government agencies, project developers, academia, Cap-and-Trade Program covered entities and the general public were encouraged to comment. ARB staff also incorporated lessons learned from implementing the current Compliance Offset Protocol and reviewing early action projects.

The ODS Protocol stakeholder process began on March 17, 2014, when ARB staff held a public workshop to discuss the decision to update several Compliance Offset Protocols, including the ODS Protocol. During this public stakeholder workshop, ARB invited interested members of the public to submit comments on the proposed updates and participate in the formal rulemaking process. Staff also had many individual interactions with stakeholders interested in discussing protocol related issues, and this staff proposal reflects those discussions.

As part of its update of this protocol, ARB staff reviewed its existing ODS Protocol, publicly available documents from the U.S. EPA, and documents submitted by technical experts and other stakeholders. These documents are included in the reference section of this staff report and are cited when relied upon for facts. The update to the ODS Protocol modifies the existing ODS Protocol as well as incorporating the best available science.

A draft version of the ODS Protocol was made publicly available in June 2014. ARB staff solicited and incorporated input from stakeholders into the proposed version released along with this staff report for public review on July 29, 2014. The formal 45-day public comment period begins on August 1, 2014 and the new Compliance Offset Protocol, along with the proposed amendments to the Regulation, will be considered at the September 18 and 19, 2014 Board hearing.

Broadly, the types of updates made to the ODS Protocol adopted October 20, 2011 include:

- Reformatting the protocol to more closely follow standard regulatory format;
- Correcting typographical errors and mistakes that occurred when transitioning the protocol originally;
- Providing clarifications based on publicly released guidance from the first years of implementing the Compliance Offset Protocol; and
- Ensuring all equations are mathematically correct and variables well defined.

The following list provides specific updates made the ODS Protocol:

- Updated the defintions and acronyms;
- Clearly defined what is included in QODS,I;
- Defined a standardized conversion factor to conver pounds to metric tons;
- Corrected erroneous carbon ratios in Equation 5.13;
- Clarified that the weight requirement for Point of Origin is triggered regardless of whether the total mass is in a single container;
- Clarified how stockpiles may determine point of origin;
- Added parentheses to existing equations 5.12 and 5.13 to correctly apply the summation and encorporated these eqautions within equation 5.9;
- Clarified how moisture, high boiling residue (HBR) and ineligible ODS are handled throughout the protocol;
- Clarified how to select the correct sample for mixed ODS;
- Made a distinction between reporting period and crediting period and defined the reporting period as a 12 consecutive month period rather than a calendar year;

- Clarified the baseline for foam does not necessarily include landfilling, which is illegal in California;
- Added a requirement for additional documentation of ODS from stockpiles starting January 1, 2015;
- Required the RCRA permit to specify a 99.99% destruction efficiency to be consistent with the assumption of 0.01% ODS emission from destruction
- Specified that containers used to transport ODS must comply with all U.S. Department of Transportation requirements;
- Provided a method to account for ineligible ODS material after destruction
- Added more specificity to the weigh-in and weigh-out procedures;
- Added ASTM Method D 7132-05 for analyzing the ODS foam blowing agent for foam samples;
- Tied regulatory conformance to the language set forth in section 95973(b) of the Cap-and-Trade Regulation;
- Clarified what a facility must do to demonstrate they meet the Montreal Protocol's Technology & Economic Assessment Panel (TEAP) standards;
- Updated fuel emission factors to be consistent with the Mandatory Reporting Regulation (CARB 2013b);
- Updated eGRID values to the latest release from the U.S. EPA.

C. Description of the Compliance Offset Protocol for Ozone Depleting Substances Projects

1. Overview

ARB's proposed revisions to the Compliance Offset Protocol ODS Projects is based on the ARB Ozone Depleting Substances Protocol adopted by the Board October 20, 2011. The ODS protocol is applicable to projects in the United States and United States Territories.

The ODS Protocol identifies methods to calculate the GHG benefits of collecting ODS and transporting and destroying it at an eligible destruction facility. To fit into a statewide, national, and international GHG accounting framework, ODS project accounting must meet recognized and robust standards, including the requirements of AB 32. This requires that GHG reductions be real, additional, independently verified, not double-counted, and permanent. The ODS Protocol is designed to meet these standards and requirements and provide accurate and standardized GHG accounting methods for complete, consistent, transparent, accurate, and conservative accounting ofGHG emissions and emission reductions associated with ODS projects. The offset protocol also defines eligibility rules, offset project boundaries, provides GHG reduction and emission calculation methods, and identifies procedures for project monitoring,

reporting parameters, and verification. All projects must pass the eligibility requirements set forth in this offset protocol and the Regulation to be eligible to register GHG reductions for the duration of the project-crediting period.

2. Conservative Accounting

The compliance offset protocol incorporates conservative baseline and project assumptions. The baseline emission estimates assume that a percentage of the ODS will be recycled or degraded. These end of life assumptions result in lowered credit for each reduction. Likewise the project baseline emission estimates include conservative assumptions. For refrigerants, emissions from substitute refrigerants are considered. For foams, the calculations include losses during the extraction process. For both types of ODS, emissions from transport and energy use are part of the project emissions. Overall, the result is that credit for one ton of reduction is significantly lowered. The default credits range from a low of under 0.20 tons of carbon dioxide equivalent (CO_2e) credit for each ton of CFC-11 from building insulation to approximately 0.87 tons of CO_2e credit for each ton of CFC-12 refrigerant.

3. Additionality

Eligible projects under this offset protocol must result in reductions that are additional to what would have occurred in the absence of the project. The offset protocol ensures additionality utilizing a performance standard approach and a regulatory additionality requirement.

There are significant existing stocks of ODS in equipment or material. For example, ODS exists for years in both refrigerant equipment and in foams in appliances and buildings. For foams, the entrained gas stays in the foam for years, generally until the end of life of the appliance or building. On the other hand, ODS in refrigerant equipment leaks out over time with the leakage rate dependent on the equipment type and maintenance level. As a result of these banks of gases in existing equipment and material, emissions of ODS will continue for decades past the phase-out dates. With the lack of current requirements to limit or eliminate emissions of these gases, most of the banks are expected to be emitted to the atmosphere eventually through leakage or end-of-life practices.

The performance standard is an identified standard of performance applicable to all ODS projects. The purpose of a performance standard is to establish a threshold that is significantly better than average greenhouse gas (GHG) reductions for a specified activity, which, if met or exceeded by a project developer, satisfies the criterion of “additionality.” If the project meets the threshold, then it exceeds what would happen under the business-as-usual scenario and generates surplus/additional GHG

reductions. This offset protocol uses a technology-specific threshold; sometimes also referred to as a practice-based threshold, where it serves as "best-practice standard" for managing ozone depleting substances. Eligible ODS are in appliance or building foam or in refrigerant equipment. Data shows that less than 1.5% of recoverable US sourced ODS are destroyed upon end-of-life of the equipment or material. This indicates that collecting and destroying the ODS is above and beyond common practice and therefore destruction meets the performance standard.

In addition to the performance standard, eligible projects must show regulatory additionality, meaning that there are no state or federal regulations or local agency ordinances/rulings requiring the installation of a biogas control system. In addition, projects must comply with all applicable local, state, and national regulations, whether for air and water quality, energy regulations, or others.

The ODS eligible under the compliance offset protocol are limited to foam blowing agents and refrigerants that are being phased out and cannot be produced or imported into the United States for any specified purpose after January 1, 2010. Additionally, the ODS covered by the offset protocol all have high global warming potentials (GWP) from several hundred to several thousand times that of carbon dioxide. Although production and importation are controlled, use of existing stocks is not controlled and destruction is not required.

This compliance offset protocol does not cover destruction of hydrofluorocarbons (HFCs) or ozone depleting substances that are still being produced in or imported into the United States. In particular, destruction of HFC-23 as a by-product of HCFC-22 production is not counted under this methodology. The HFC-23 credits are controversial because the credits can cause the perverse incentive to increase HCFC-22 production just to produce HFC-23 to be destroyed. ARB's ODS compliance offset protocol avoids that concern by not covering HFCs and only covers banks of ODS whose production and import has been phased out in the United States.

4. Permanence

GHG reductions resulting from the destruction of ODS are permanent. The offset protocol requires that the facility destroy ODS that would otherwise have been emitted to the atmosphere in the absence of the project.

5. Quantification Methodologies

The calculation methodologies in the protocol include emissions and emission reductions from ODS transport and destruction. The offset protocol covers direct emissions of ozone depleting substances and carbon dioxide (CO_2) associated with the

use and disposal of banks of ODS, transport and destruction of ODS, and use of substitute refrigerants. Emission calculations associated with the project include variables such as destruction efficiencies. Quantifying the GHG impact associated with destruction of ODS requires the use of measurements for the most important emissions or reduction points as well as conservative default emission factors for smaller emission sources.

6. Monitoring, Reporting, and Verification

Project developers are responsible for monitoring the performance of the project and operating the destruction system in a manner consistent with either their RCRA permit or UN TEAP guidelines and the Montreal Protocol Code of Good Housekeeping. Project developers must also collect and record measurement data verifying the composition and quantity of ODS destroyed, in some cases analysis must be done by an independent laboratory unaffiliated with the project developer. Project developers must report GHG reductions resulting from project activities and submit verified emission reduction reports annually. For transparency, project information will be made publically available.

IV. ENVIRONMENTAL IMPACTS ANALYSIS

A. Introduction

Staff has prepared this environmental analysis (EA) for the proposed updated Compliance Offset Protocols for Livestock Projects (Livestock Protocol) and Ozone Depleting Substances Projects (ODS Protocol) under its regulatory program certified by the Secretary of the Natural Resources Agency (14 CCR 15251(d); 17 CCR 60000-60008). Public Resources Code section 21080.5 of the California Environmental Quality Act (CEQA) exempts public agencies with certified regulatory programs from certain CEQA requirements, including but not limited to, preparing environmental impact reports, negative declarations, and initial studies (14 CCR 15250). ARB prepares its required CEQA documentation as part of the Staff Report prepared for the proposed action (17 CCR 60005).

Staff has determined that adoption of the proposed updated Livestock and ODS Protocols has no potential to cause any new significant environmental impacts or a substantial increase in the severity of impacts previously disclosed in the *Functional Equivalent Document prepared for the California Cap on GHG Emissions and Market-Based Compliance Mechanisms* (2010 FED). Further, there are no changes in circumstances or new information that would otherwise warrant any subsequent environmental review; the 2010 FED adequately addresses the potential environmental impacts of implementation the updated versions of these two protocols.

B. Prior Environmental Analysis

In October 2011, the Board adopted the Livestock and ODS Protocols, along with the Protocols for Urban Forest Projects and U.S. Forest Projects. In 2010, ARB prepared an environmental analysis (2010 FED) that was included as Attachment O to the Staff Report: Initial Statement of Reasons (ISOR), released for public review and comment October 2010. The 2010 FED provided a programmatic level of analysis of the potential environmental impacts of the expected compliance responses of Cap-and-Trade covered entities and the potential indirect impacts associated with development of offset projects under the four compliance offset protocols. Staff prepared written responses to comments received on the 2010 FED in a document entitled *Response to Comments on the Functional Equivalent Document Prepared for the California Cap on GHG Emissions and Market-Based Compliance Mechanisms* released on October 10, 2011. At its hearing on October 20, 2011, the Board adopted Resolution 11-32 certifying the 2010 FED, approving the written responses to comments on the 2010 FED, and adopting findings and statement of overriding considerations. The Board also adopted the *Adaptive Management Plan* (CARB 2011b) to address any unanticipated biological

resource impacts resulting from implementation of projects under the Forestry Protocol. A Notice of Decision was filed with the Secretary of the Natural Resources Agency for public inspection and on ARB's website on October 27, 2011. These documents are available at http://www.arb.ca.gov/regact/2010/capandtrade10/capandtrade10.htm

For the four protocols, the 2010 FED concluded that implementation of offset projects would result in beneficial impacts to GHG emissions and no adverse impacts or less-than-significant impacts in all resource areas, except for the following: implementation of projects under the Livestock Protocol could result in significant adverse impacts to odors, and construction impacts to cultural resources, noise, and traffic; implementation of projects under the Urban Forestry Protocol could result in significant adverse impacts to cultural resources; and implementation of projects under the Forestry Protocol could result in significant adverse impacts to biological resources and land use. There were no impacts identified for ODS.

The 2010 FED identified mitigation that could reduce most of the identified impacts to a less-than-significant level. The 2010 FED relied on the agencies with local permitting authority to analyze site- or project-specific impacts because the programmatic 2010 FED could not determine with any specificity the project-level impacts, and ARB does not have the authority to require project-level mitigation for specific projects carried out under the offset protocols. Because the programmatic analysis in the 2010 FED could not determine project-specific details of impacts and mitigation, and there is an inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts, the 2010 FED took a conservative approach in its post-mitigation significance conclusion finding potentially significant impacts to these resource areas as significant and unavoidable.

C. Current Proposed Updates to the Livestock and ODS Protocols

As previously described in Chapter II and III of this Staff Report, the proposed updated Livestock and ODS Protocols include the following types of changes:

- Reformatting the protocol to more closely follow standard regulatory format.
- Correcting typographical errors and mistakes that occurred when transitioning the protocol originally.
- Providing clarifications based on publicly released guidance from the first years of implementing the Compliance Offset Protocol.
- Ensuring all equations are mathematically correct and variables well defined.

D. Legal Standards for Determining When Additional Environmental Analysis is Required

Under its certified regulatory program, ARB prepares the required CEQA documentation as part of the Staff Report for the proposed action (17 CCR 60000-60008). When the equivalent of an Environmental Impact Report (EIR) or negative declaration has been prepared for a rule, regulation, order, standard or plan, ARB looks to Public Resources Code section 21166 and CEQA Guidelines section 15162 for guidance on the triggers for further environmental review when considering approval of changes to that project. When an EIR for a project has been certified, that EIR is conclusively presumed valid unless a lawsuit challenging the EIR is timely filed (PRC 21167.2). This presumption precludes reopening the prior CEQA process unless one of the events triggering additional review as specified in Public Resources Code section 21166 and CEQA Guidelines section 15162 has occurred.

CEQA Guidelines section 15162 states:

a) When an EIR has been certified or negative declaration adopted for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in the light of the whole record, one or more of the following:
   (1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

   (2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

   (3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:
      (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

      (B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

If a subsequent or supplemental EIR or negative declaration is not required, the lead agency may document its decision and supporting evidence in an addendum (14 CCR 15164(a), (e)). The addendum and lead agency's findings should include a brief explanation of the decision not to prepare a subsequent or supplemental EIR or negative declaration (14 CCR 15164(e)). An addendum don't need to be circulated for public review, but it must be considered by the lead agency prior to making a decision on the project (14 CCR 15164(c)-(d)).

This chapter serves as a substitute document equivalent to an addendum to the 2010 FED prepared under ARB's certified regulatory program to document ARB's determination that no subsequent or supplemental environmental analysis is required for the proposed updated Livestock and ODS Protocols.

E. Determination that No Additional Environmental Analysis is Required

Using CEQA Guidelines section 15162 as guidance, a brief explanation is provided below of to document that none of the conditions requiring further environmental review are triggered by the proposed updates.

1. *There are no substantial changes to the Livestock and ODS Protocols previously analyzed in the 2010 FED which require major revisions to the 2010 FED due to the involvement of new significant environmental impacts or a substantial increase in the severity of previously identified impacts.*

The updates to the Livestock and ODS Protocols are limited to reformatting the protocols, correcting typographical errors and mistakes, providing clarifications, and ensuring all equations are mathematically correct and variables well defined. None of these changes impact how projects are implemented under the two protocols. So there are no changes to the environment impacts identified in the 2010 FED.

2. *There are no substantial changes with respect to the circumstances under which the the Livestock and ODS Protocols are being undertaken which require major*

revisions to the 2010 FED due to the involvement of new significant environmental impacts or a substantial increase in the severity of previously identified impacts.

There are no substantial changes in the environmental circumstances under which the updated Livestock and ODS Protocols will be implemented which would require major revisions to the 2010 FED. As explained above, the updates are administrative and procedural in nature and would not alter the the way projects are implemented or result in any changes that affect the physical environment.

3. *There is no new information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the 2010 FED was certified as complete, that changes the conclusions of the 2010 FED with regard to impacts, mitigation measures, or alternatives;*

During the first years of implementing the Livestock and ODS Protocols, no new information of substantial importance has come to staff's attention through due diligence of all project reviews that would change any of the conclusions of the 2010 FED for these two protocols.

F. Conclusion

The 2010 FED certified by ARB in 2011 covered the Livestock and ODS Protocols. The 2010 FED concluded there were no adverse environmental impacts associated with implementation of the ODS Protocol, and the Livestock Protocol could result in significant adverse impacts to odors, and construction impacts to cultural resources, noise, and traffic. ARB staff has determined that an EA equivalent to an addendum is appropriate for the Board's approval of the current proposed updated Livestock and ODS Protocols because, as described above, the updates do not change implementation of offset projects under these protocols. So the updates do not result in any new significant environmental impacts or in a substantial increase in the severity of impacts than previously disclosed in the 2010 FED. Further, there are no changes in circumstances or new information that would otherwise warrant any subsequent environmental review, and therefore, the 2010 FED adequately address the potential environmental impacts of implementation of the proposed updated Livestock and ODS Protocols and no additional environmental analysis is required.

V. REFERENCES

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