

The role of integrated reporting on global warming in achieving the requirements of international auditing standard 3410 an applied study in a sample of the local environment

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Abstract: The research aims to evaluate the role of assurance services according to Standard 3410 in enhancing the credibility of integrated reporting on global warming and its confirmation in local refineries (Dura and Shuaiba refineries) and to identify the challenges facing the application of assurance services through integrated reporting on global warming in order to propose solutions to overcome the challenges and activate the role of assurance services in enhancing the quality of integrated reporting on global warming and to analyze the level of application of Standard 3410 in assurance services through integrated reporting on global warming, where the importance of the research appears in terms of its role in bridging the knowledge gap and achieving practical benefits, as this research is distinguished by scientific importance. A prominent work that deals with a modern professional issue that has not received sufficient attention in Iraq, despite the need for it by stakeholders, as the research focuses on criterion 3410, taking into consideration The associations with the standard 3000 are that it highlights the importance of assurance services in expanding the scope of services provided by auditors, which leads to increasing the importance and role of audit offices and enhancing their position in the market and increasing The value and benefit of the auditing profession relative to the users of financial reports, thus improving the quality of their decisions and increasing their confidence in the profession, as well as exploiting the skills and experience of accountants in The field of assurance services through reliance on integrated reporting of global warming and what contributes to addressing the problems facing its application. The research was based on a main hypothesis that "there is a statistical relationship with a significant level of moral significance between integrated reporting on global warming and achieving the requirements of Standard 3410." The researcher reached a set of conclusions, the most prominent of which is that the emergence of integrated reporting represents a qualitative addition to the services provided by the auditor, as its role has changed significantly from the traditional services associated with the statements. Financial and non-financial, and the auditor has become providing new services represented in his confirmation to ensure the information and its quality, which means that his role is no longer limited to verifying financial accuracy only, but also covers other aspects to ensure transparency and accuracy in the information provided, especially with regard to global warming. Based on these conclusions, the researcher has presented a number of recommendations, the most important of which is working on preparing a proposed framework for integrated reporting on global warming to be referred to when problems occur in scientific application, including a clear and comprehensive description of the theoretical concepts associated with all types of assurance services, especially with regard to integrated reporting on global warming according to International Auditing Standard 3410. **Keywords:** Integrated reporting, global warming, International Auditing Standard 3410, local environment.

Keywords: *Global Warming, Integrated Reporting, International Auditing, Local Environment, Standard 3410.*

1. Introduction

The integrated reporting profession aims to serve the community by adding emissions to the published accounting information of various business establishments, including integrated reporting of global warming. Therefore, the more the community's needs for obtaining various information develop, the more the auditing profession must develop its services in line with the developments witnessed by the contemporary accounting business environment. Therefore, these developments were directly reflected in the auditing profession, and the requirements of the profession are no longer limited to reviewing financial statements and expressing an impartial technical opinion about them. Rather, the need has emerged for a new set of services to emphasize financial and non-financial information, past and future information, and that this information be examined and evaluated by an independent third party that aims to provide an appropriate level of assurance on the reliability of this information and its suitability for decision-making purposes, in addition to the occurrence of financial collapses of major companies. Fraudulent financial reporting is on the rise, leading to a lack of confidence in financial reporting information. This has prompted many professional organizations to develop new types of professional services, namely, integrated professional reporting Assurance Services, which can be provided by auditors in response to the challenges and opportunities created by the contemporary business environment, in an effort to enhance the credibility of accounting information, and also to develop the offering of their professional services, especially in light of the demand for these services by users of accounting information. Integrated reporting reports on financial reporting on global warming in the local environment are considered an important part of efforts to combat climate change. However, there are many obstacles that may face the process of preparing these reports in the local environment, especially in Baghdad Governorate, one of the most important obstacles is the lack of resources and technology available to the competent authorities in Baghdad Governorate. There may be difficulties in providing the data and information necessary to prepare the reports, in addition to the lack of experience and efficiency in using modern technology to collect and analyze data. In addition, the concerned authorities may face difficulties in determining the financial impacts of global warming on the local environment. It may be difficult to estimate the economic costs of climate change and its impact on the environment and the local community. In addition, there may be challenges in providing cooperation and coordination between the various parties in Baghdad Governorate, which may lead to difficulties in collecting and analyzing data in a comprehensive and accurate manner. To overcome these obstacles, the concerned authorities in Baghdad Governorate must enhance cooperation and coordination between them, and provide the necessary resources to improve the quality of data and its analysis, in addition to developing the efficiency and expertise in the field of preparing reports on financial reporting on global warming. Certainly, preparing integrated reporting reports on financial reporting on global warming in the local environment represents a challenge, but through cooperation and joint efforts, the concerned authorities in Baghdad Governorate can overcome these obstacles and work towards achieving sustainable climate and environmental goals.

1.1. Research Problem

Confidence in financial reporting has been greatly shaken recently due to the problems and crises that have hit major business establishments around the world in the context of a contemporary business environment. Decision-making is based on information, and the reliability and quality of financial reporting information have become a matter of doubt. Financial scandals involving major companies have raised doubts about the accuracy and reliability of financial reporting. The information provided in the financial reports has increased the tendency of companies towards optional disclosure, especially with regard to financial information, due to the difficulty of verifying the credibility of this information. Therefore, in front of These challenges highlight the need for integrated reporting as an effective tool to restore trust in financial information. By providing independent assurance on the reliability of information, integrated reporting contributes to providing Additional guarantees for users regarding the accuracy and reliability of the information provided in financial reports, as well as helping to

improve the quality of decisions taken by investors and other concerned parties, and reducing Integrated reporting of information risks associated with financial reports, which enhances confidence in financial markets and opens the way to the possibility of preparing an assurance report on global warming. Accordingly, the research problem can be presented through the following questions: 1. What are the challenges and obstacles facing economic units (oil refineries) when carrying out integrated reporting on Local warming?

2. What are the regulatory, legal, economic and social factors that influence the process of conducting integrated local warming reporting according to Standard 3410?

3. What is the role of assurance services according to Standard 3410 in ensuring the completeness of global warming reporting?

1.2. Research Aims

1.2.1. The Research Aims To

1. Evaluate the role of assurance services according to Standard 3410 in enhancing the credibility and assurance of integrated global warming reporting in Dora and Shuaiba refineries.

2. Identify the challenges facing the application of assurance services through integrated global warming reporting in Dora and Shuaiba refineries.

3. Propose solutions to overcome challenges and activate the role of assurance services in enhancing the quality of integrated global warming reporting.

4. Analyze the level of application of Standard 3410 in assurance services through integrated global warming reporting in Dora and Shuaiba refineries.

5. Identify the types of assurance services used in Dora and Shuaiba refineries (reasonable or limited assurance).

6. Measure the awareness of employees in Dora and Shuaiba refineries of the importance of assurance services and their role in enhancing the credibility of integrated global warming reporting.

1.3. Research Importance

The research gains its importance from the fact that it bridges the knowledge gap and achieves practical benefits, as this research is distinguished by its prominent scientific and practical importance, as it addresses a modern professional issue that has not received much attention. The Kafi in Iraq, despite the need for stakeholders and the issuance of two standards on the importance and role of assurance services (Standard 3000 and Standard 3410), as the research focuses on Standard 3410 while taking into account its links to Standard 3000, and the importance of the research stems from the fact that it meets Highlighting the importance of assurance services in expanding the scope of services provided by auditors, which leads to increasing the importance and role of auditing offices, enhancing their position in the market, and increasing the value and benefit of the profession. Auditing the financial reporting users, which leads to improving the quality of their decisions and increasing their confidence in the profession, as well as exploiting the skills and experience of auditors in the field of assurance services by relying on reporting. Integrated heat exchanger that helps in solving the problems faced in its application.

1.4. Research Hypotheses

The study and analysis of the research variables and the nature of the relationship between them is based on two main hypotheses: The first main hypothesis: "There is a statistical relationship with a significant level of moral significance between integrated reporting on global warming and achieving the requirements of Standard 3410, and the following sub-hypotheses emerge from this hypothesis: The first sub-hypothesis: "There is a significant correlation between integrated reporting on global warming and achieving the requirements of Standard 3410 The second sub-hypothesis: "There is a significant influence relationship between integrated reporting on global warming and achieving the requirements of Standard 3410. The second main hypothesis: In the local environment, it is not possible to prepare a

confirmation report on global warming according to the requirements of Standard 3410 by relying on integrated reporting on global warming

1.5. *Research Limits*

1. Objective Limits: The research tested the expected impact of integrated reporting on global warming and its reflection on achieving the requirements of Standard 3410 To prepare the confirmation report.
2. Temporal boundaries: The period (2020-2023) is the basis for collecting sources and accounting data on the refineries, the research sample.
3. Spatial boundaries: A group of oil refineries in Iraq (Al-Dura, Al-Shuaiba) were selected as a sample to apply the practical aspect of the research.

1.6. *Research Community and Sample*

1. Research community: The research community is represented by the oil refineries operating in Iraq within the formations of the Iraqi Ministry of Oil.
2. Research sample: The research sample is represented by a deliberate sample of oil refineries (Al-Dura, Al-Shuaiba) operating in Iraq.

1.7. *The first topic: The Conceptual Framework*

Global warming is an increase in the Earth's temperature as a result of increased greenhouse gas emissions into the atmosphere. Global warming is a serious environmental problem that affects the environment, wildlife and humans. The effects of the global warming phenomenon include an increase in the average temperature of the Earth, changes in rainfall patterns and rising sea levels. These changes affect the natural environment, agriculture and public health. To combat the phenomenon of global warming, measures must be taken to reduce greenhouse gas emissions from various sources such as industry, transportation and agriculture. The use of renewable energy sources should be encouraged and energy efficiency should be improved, as addressing the phenomenon of global warming requires joint efforts by governments, companies and civil society to reduce its negative effects on the environment and reduce climate change. (Ahmed, 2020: pp275-296)

1.8. *First: The Concept of Integrated Reporting*

Integrated reporting is the process of collecting and analyzing information related to the organization's performance in various fields such as the environment, society and economy and presenting it in a comprehensive and integrated manner. Integrated reporting aims to provide a complete picture of the unit's performance and identify the strengths and weaknesses in its performance, as the Integrated Reporting Framework issued by IIRC indicates the importance of providing integrated reports that clarify how the economic unit's strategy, governance and future prospects affect the creation or preservation of value in the short, medium and long term. The integrated report is a communication tool that enables the explanation and interpretation of the interconnected relationships between these elements, which contributes to enhancing a better understanding of the value creation process within the economic unit (PAR1-12021 IRC). The integrated report is a vital communication tool that contributes to explaining and interpreting the interconnected and interrelated relationships between the unit's strategy, its future prospects and governance policies. Through this tool, the economic unit can achieve a deeper and better understanding How do these factors affect the value creation process? The integrated report of the economic unit allows for an analysis of the relationships between these different aspects and determining how they are integrated in a way that enhances performance and sustainability in the economic unit. Thus, the integrated report contributes to enhancing transparency and trust with stakeholders and contributes to building a positive reputation for the economic unit in the market and society (236Liu et al, 2019;). Integrated reporting is an application of the concept of Integrated Thinking, through which the interconnected relationships between the

various functional and operational units in the economic unit are taken into account, in addition to the various types of capital that the economic unit uses or is affected by. Therefore, integrated thinking aims to achieve integration in the decision-making process and events that affect value creation over time. Through integrated thinking, the economic unit can see the complete and comprehensive picture of its operations and activities, which helps it understand the impact of each part of its parts on the other and on the ultimate goal, which is value creation. This approach also enables the economic unit to achieve integration between the various departments and achieve better coordination in its strategies and operations, which contributes to enhancing performance and sustainability in the long term (2 PAR1-: 2021, IIRC). Today, managers of all categories are required to go beyond the various traditional economic criteria when making business decisions and consider the environmental, social and governance aspects comprehensively. This means that managers must be sensitive to the environmental and social impacts of their economic decisions and take environmental, social and governance responsibility into account when making these various decisions. It is necessary for managers to have a comprehensive vision that includes the environmental and social consequences of their decisions and to be aware of the negative environmental impacts that may result from their business activities. Preserving the environment and reducing negative impacts on it is an essential part of corporate social responsibility (147-148 Abeysinghe, 2020.), which necessarily requires that integrated reporting include all information related to social responsibility, environmental responsibility and various information about governance (Cozmaighian, 2015:489 (Pistoni et al, 2018:126) When we talk about integrated reporting, it must reflect the representation The integrated performance of the unit in a comprehensive and transparent manner, which means that reporting must include all aspects related to the performance of the unit, whether these aspects are financial or non-financial (Owolabi et al, 2020: 104). The researcher believes that preparing voluntary disclosures is a strategic decision, as the board of directors formulates policies, monitors regulatory activities and discloses them, while senior management implements those policies. Regulatory activities must also be determined according to the regulatory content, regulatory context and the environment in which the economic unit manages its affairs. Voluntary disclosure must be in accordance with the opinion or decision of the board of directors, which contributes to representing the unit honestly to users and reporting transparently on monetary and non-monetary activities.

Table 1.
Traditional and integrated reporting of global warming.

Integrated reporting report	Conventional global warming report	Side
Comprehensive, covering financial and non-financial performance including environmental, social and governance aspects.	It focuses particularly on greenhouse gas emissions and their effects on global warming.	Scope
Providing a comprehensive view of how an organization creates value in the short, medium and long term.	Focus on the organization's impact on climate and global warming mitigation efforts.	Purpose
It is intended for a wide range of stakeholders including investors, customers, employees and local communities.	Often directed toward regulators, environmental researchers, and climate change organizations.	Target Audience
It includes information about the organization's strategy, business model, the environment in which it operates, performance and future prospects as well as its impact and response to climate	Focuses on measuring and assessing greenhouse gas emissions, initiatives to reduce these emissions and the impacts of global warming.	Content

Integrated reporting report	Conventional global warming report	Side
change.		
Follows the integrated reporting framework developed by the International Integrated Reporting Council (IIRC).	Can be based on various standards such as the Greenhouse Gas Protocol (GHG Protocol), GRI standards, or CDP principles.	Guiding Framework
Promote transparency and accountability, and support informed decision-making among stakeholders by providing integrated information.	Focus on transparency regarding environmental impacts, global warming mitigation efforts and sustainability promotion.	Objectives

Source: Gilbert Lenssen, N. Craig Smith, and C.B. Bhattacharya, *Integrating Sustainability into Business: An Implementation Guide for Responsible and Sustainable Business Practices*, Greenleaf Publishing, 2019, p133
 The researcher believes that the dimensions of integrated reporting on global warming include many important aspects that must be taken into account to understand and evaluate the impacts of climate change on the environment and society, including: These dimensions include the scientific dimensions, including the aspect of providing information and scientific data about global warming and climate change, and the environmental dimensions, including what this aspect relates to providing information about the environmental effects of global warming, such as plant and animal extinctions and changes in ecosystems, and the economic dimensions, including providing information about the economic effects of global warming, such as adaptation costs. And mitigation and its effects on various industries and the economy in general and using These integrated dimensions can provide comprehensive and integrated reports on global warming that contribute to a deeper understanding of its effects and direct efforts towards adaptation, mitigation and taking the necessary measures to confront it, as the requirements of International Auditing Standard 3410 (Assurance Engagements on Greenhouse Gas Statements) will be addressed in the next section.

1.9. Second: International Auditing Standard 3410 (ISA 3410)

Recognizing the relationship between greenhouse gas emissions and climate change, many facilities measure greenhouse gas emissions for internal management purposes, and many also prepare a greenhouse gas inventory

1. As part of the regulatory disclosure system and also
2. As part From the Emissions Trading Scheme and also
3. For optional information for investors and others, optional disclosures may be published, for example, as a separate document or included as part of a larger ongoing report or annual report on the unit or is preparing to support inclusion in the carbon register.

1.10. Audit Scope

This standard addresses assurance obligations for reporting GHG inventory where the accountant's conclusion on the assurance engagement covers information in addition to the GHG statement, for example when the accountant uses the report of a sustainability report of which the GHG statement is only part in such an engagement. Cases:- (SOCPA: 2022:2)

1. This standard applies to assurance procedures performed in relation to the listing of greenhouse gases except where the greenhouse gas statements form part of comprehensive information subject to assurance
2. Assurance Engagement Standard No. (3410) applies Or another assurance engagement standard that addresses a specific subject matter of the assurance procedures performed in relation to Relates to the remaining information covered by the accountant's conclusion. This standard does not address or provide specific guidance on assurance obligations to report: (Noor Hilal Hussein, 2024: pp120-130)
 1. Emissions lists other than greenhouse gas emissions lists such as nitrogen oxides (NOX) and sulphur oxides (SO₂), however this standard also provides guidance on those obligations.
 2. Other greenhouse gas information such as product life cycle, pre-defined baseline information and key performance indicators based on emissions data. (Warren, 2018: pp400-427)
 3. Tools, processes or mechanisms such as offset projects used by other facilities to reduce emissions (Maroun, 2017: pp329-346) However, when the list of greenhouse gases includes emission reductions that are subject to assurance, the requirements of this standard apply to those emissions that have been

reduced accordingly. The assurance engagement framework indicated that an assurance engagement could be an assurance-based engagement or a direct reporting engagement. This standard addresses engagements based on assurance-based engagements only. (SOCPA, 2022:2-11) The researcher believes that the International Standard on Auditing 3410 applies to the assurance procedures related to the inclusion of greenhouse gases, except in cases where the greenhouse gas statements are part of comprehensive information subject to assurance. This standard also applies to the assurance procedures related to the remaining information covered by the accountant's conclusion (Muna Jabbar, 2024: pp1-15). However, the standard does not address or provide specific guidance on the assurance obligations for reporting non-greenhouse gas emissions statements such as nitrogen oxides and sulfur oxides. □

Procedures for Reasonable Assurance and Limited Assurance Engagements The Standard on Assurance Engagements (3410) states that an assurance engagement is either a reasonable assurance engagement or a limited assurance engagement. This standard addresses both reasonable assurance and limited assurance engagements. (SOCPA, 2022:16) In both a reasonable assurance engagement and a limited assurance engagement to acknowledge GHGs, the accountant selects a set of assurance procedures, including a combination of verification, confirmatory observation, calculation iteration, repetition, analytical procedures, and consultations. Determining which assurance procedures to apply to a particular engagement is a matter of professional judgment. Because GHGs cover a wide range of circumstances, the nature, timing, and extent of procedures are likely to vary significantly from engagement to engagement (Boritz, J.E., 2020: 15-40). Unless otherwise indicated, all requirements of this Standard apply to both reasonable assurance engagements and limited assurance engagements. Because the level of integrity achieved in a limited engagement is lower than in a reasonable engagement, the procedures that the accountant will perform in a limited engagement will differ in nature and be less in scope than in a reasonable engagement (Fazzini, M, 2016: 46). The requirements that apply to one type of engagement or another are shown vertically with the letter "D" (limited assurance) or "L" (reasonable assurance) after the paragraph number. Although some procedures are required only for reasonable assurance engagements, they may be appropriate in some limited assurance engagements that identify the main differences between the additional procedures that the accountant takes for reasonable assurance engagements and limited assurance in relation to existing global warming. (SOCPA, 2022:18) The researcher believes that Standard 3410 specifies that the assurance engagement can be either a reasonable assurance engagement or a limited assurance engagement. The standard deals with the details of both reasonable assurance and limited assurance engagements, as we find that in both the reasonable assurance engagement and the limited assurance engagement for the declaration of greenhouse gases, the accountant chooses a set of assurance procedures, including a set of verification, observation, confirmation, repetition of the calculation, repetition, analytical procedures, and consultations. The requirements that apply to one type or another of engagements are displayed vertically with the letter "D" (limited assurance) or "L" (reasonable assurance) after the paragraph number.

1.11. Third: The Relationship with the Assurance Engagements Standard (3000) and Other Professional Publications and Other Requirements

The legal accountant must comply with the Assurance Engagement Standard (3410) and this standard when performing an assurance engagement to report on the greenhouse gas statement of a specific economic entity, complements this standard, does not replace the Assurance Engagements Standard (3000), and expands on how to apply the Assurance Engagements Standard (3000) to the assurance engagement for the greenhouse gas statement report of a specific economic entity (SOCPA, 2022:15). Compliance with the Assurance Engagement Standard (3410) among other things reflects compliance with Parts (A) and Part (B) of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants (Ethics) in relation to assurance engagements or requirements and other professional requirements or requirements stipulated in a law or regulation that are at least equivalent to the requirements of Part A and Part B and also requires that the engagement

partner be a member of one of the offices that apply the standard for quality control or other professional requirements or requirements stipulated in a law or regulation that are at least equivalent to the requirements of the International Standard on Quality Control (SOCPA, 2022:15).

Table 2.

Understanding of internal control in the unit according to the requirements of standard 3410.

Reasonable assurance	Limited confirmation
With regard to internal control relating to the measurement and reporting of emissions as a basis for identifying and assessing the risks of material misstatement, the auditor should obtain an understanding by inquiring about:	<ul style="list-style-type: none"> The auditor should obtain an understanding of the following components of the entity's internal control relating to the measurement and reporting of emissions as a basis for identifying and assessing the risks of material misstatement:
Control environment. <ul style="list-style-type: none"> Information system including relevant business processes, reporting roles and responsibilities for emissions reporting and significant matters associated with emissions reporting. Results of the unit's risk assessment mechanism. 	<ul style="list-style-type: none"> Control environment. The information system, including relevant business processes, reporting roles and responsibilities for emissions reporting, and significant matters related to emissions reporting. The results of the entity's risk assessment process. The control activities relevant to the engagement that the auditor considers necessary to understand in order to assess the risks of material misstatement at the assertion level and to design other procedures in response to the assessed risks. An assurance engagement does not require an understanding of all controls related to each significant type of emissions and disclosures in the GHG statement or to each associated assertion. Monitoring controls. Upon reaching the understanding required in paragraph 25m, the practitioner shall evaluate the design of the controls and determine whether they have been implemented by taking specific actions in addition to making inquiries of the unit's employees.

Source: Prepared by the researcher using data from SOCPA Assurance Engagements Standard 3410, Auditing Standard (Global Warming Audit Saudi Organization for Certified Public Accountants SOCPA), P1152.

Table 3.

Identifying and assessing the risks of material misstatement according to Standard 3410.

Reasonable assurance	Limited confirmation
The auditor must identify and assess the risks of material misstatement:	The auditor must identify and assess the risks of material misstatement:
<ul style="list-style-type: none"> At the GHG statement level; At the declaration level for significant types of emissions and disclosures, as a basis for designing and implementing certain procedures whose nature, timing and extent: 	<ul style="list-style-type: none"> At the GHG statement level For significant types of emissions and disclosures as a basis for designing and implementing specific procedures whose nature, timing and extent

Reasonable assurance	Limited confirmation
<ul style="list-style-type: none"> Respond quickly to the assessed risks of material misstatement Allow the auditor to obtain reasonable assurance about whether the GHG statement has been prepared, in all material respects, in accordance with applicable criteria 	<ul style="list-style-type: none"> Respond quickly to the assessed risks of material misstatement Allows the auditor to obtain limited assurance as to whether the GHG statement has been prepared, in all material respects, in accordance with applicable criteria.

Source: Prepared by the researcher using data from SOCPA Assurance Engagements Standard 3410, Auditing Standard (Global Warming Audit Saudi Organization for Certified Public Accountants SOCPA), P1153-1156

The researcher believes that the accountant should design and implement additional procedures whose nature, timing and scope are consistent with the risks that have been assessed, taking into account the required level of security, reasonable or limited, as appropriate.

The second section: Measuring and analyzing research variables and testing its hypotheses in refineries, the research sample

1.12. First: Field Research Method

The descriptive exploratory study method based on statistical quantitative analysis was adopted. To achieve the research objectives and test its hypotheses, the research subject data must be available. Therefore, the researcher used the questionnaire form as a basic tool to collect data from a selected sample of oil refineries across Iraq. Therefore, a questionnaire form was designed to collect field data from the research sample. The questionnaire was designed according to the theoretical analysis of the variables and existing relationships. A Likert scale consisting of five degrees ranging from (completely agree, agree, neutral, disagree, completely disagree) was used to standardize and measure the questionnaire variables. The initial questionnaire form was built according to the following axes:

* The first axis: Personal data of the respondents: This axis deals with the general data of the respondents, which included (academic qualification, scientific specialization, work experience).

* The second axis: Questions related to integrated reporting on global warming: This first variable was expressed through (20) statements as shown in the table.

The third axis: Questions related to achieving the requirements of Standard 3410: This second variable was expressed through (20) statements as shown in Table 4.

Table 4.
Questionnaire structure.

Questions	Variable address	Variables
20	Integrated global warming reporting	The first
20	Meet the requirements of standard 3410	The second
40	Total	

1.13. Second: Research Community and Sample Procedures

The current aspect deals with describing the research community and sample as follows:

1. Field research procedures: To achieve the main research objectives and test its hypotheses, data must be available to contribute to achieving the best results. The researcher used the questionnaire form as a tool to collect data from the research sample, which is (Al-Dawra Refinery and Al-Shuaiba Refinery) with the aim of knowing the opinion of workers in the accounting field according to the five-point Likert scale that includes weights (completely agree, agree, specific, disagree, disagree at all) and in light of the weights, the weighted arithmetic mean of the survey sample answers is calculated and then the degree of agreement and the general direction of the answer are determined according to the following Table (5):

Table 5.
Five-point ball scale (weighted average).

Weighted average	Degree of approval
1.79-1	Totally disagree
2.59-1.80	Disagree
3.39-2.60	Neutral
4.19-3.40	Agree
5-4.20	Totally agree

2. Research community and sample: The research community consists of oil refineries in Iraq, while the research sample was represented by two refineries that are considered among the largest refineries in Iraq and their thermal emissions are somewhat large compared to other refineries. Therefore, the researcher chose these two refineries due to their importance in global warming in Iraq, namely the Dora refinery and the Shuaiba refinery. Based on the nature of the research, (140) questionnaires were distributed to the study community manually and electronically, and through field visits. In this context, the questionnaire form was distributed to the research sample as shown in Table (6).

Table 6.
Study community and sample.

Response rate	Returned and valid questionnaires	Number of questionnaires distributed to the selected sample	The society
%71.42	100	140	Oil refineries in Iraq

Note: * The table was prepared by the researcher.

1.14. Third: Results of the Questionnaire Validity and Reliability Test

The validity and reliability tests were adopted for the questionnaire form to be distributed to the selected sample and were as follows:

1. Apparent validity of the questionnaire: The initial questionnaire was presented for arbitration purposes (appendix) to a group of specialized academics whose names and specializations are shown. Care was taken to discuss the proposals and amendments submitted and to respond to the opinions and proposals of the honorable arbitrators and to carry out the necessary deletions and amendments in light of the proposals submitted until the final questionnaire shown in appendix (1) was reached, which was distributed to the two research samples.

2. Internal consistency: In this part, the degree of validity of the questionnaire form was tested to show the extent of its ability to measure what it was designed to measure in the research hypotheses. The validity of the questionnaire was measured by calculating the degree of consistency of each statement of the questionnaire with the axis to which this statement belongs. Therefore, the internal consistency of the questionnaire is calculated through the correlation coefficients (simple correlation coefficient Person) between each statement with the questionnaire statements and the total score of the paragraph itself. For the purpose of further verification of the first variable, Table (8) shows the degree of consistency of each paragraph within the first variable (integrated reporting on global warming). To measure the degree and importance of the correlation between these paragraphs, Table (7) shows the results of the test in terms of the correlation coefficient for each statement and the probability value of the statement.

Table 7.
Internal correlation coefficient for (integrated reporting on global warming).

Sig.	Correlation coefficient	Phrases	T
0.000	0.711**	Voluntary disclosure of fuel combustion gaseous pollutants through Integrated Global Warming Reporting (IGCR) is a strategic decision taken by the Board of Directors or its designee	1
0.000	0.720**	Integrated reporting reports on the presence of pollutants resulting from oil and fat spills . should reflect the opinion or decision of the Board of Directors, which contributes to representing the unit honestly and reporting transparently	2
0.000	0.670**	Integrated reporting of heavy fuel in the operation of power generation plants is considered as a concept regardless of the number of financial statements or reports issued by the economic unit for the financial period	3
0.000	0.741**	The integrated reporting on the weaknesses of the Ministry of Environment's procedures for power generation plants must be concise to ensure its effectiveness and at the same time contain the basic information that allows the unit's strategy to be understood without the burden of producing inappropriate information	4
0.000	0.632**	Integrated reporting on the absence of emission quality analysis devices represents a case of integrating the different aspects of the economic unit's organizational activities into a single report that shows the extent to which the economic unit's strategy supports environmental aspects	5
0.000	0.653**	Integrated Global Warming Reporting is a report that combines financial and non-financial information on global warming and is a means of communication used by the economic unit in a way that clarifies the link and interaction between the financial, environmental, social, administrative and strategic performance of the economic unit in a summary report	6
0.000	0.790**	The preparation of integrated global warming reports will be an important development to meet the growing need for additional global warming information to appear alongside financial statements in formulating economic decisions	7
0.000	0.655**	Identifying the reasons for resorting to integrated reporting on global warming enables focusing on financial and non-financial performance and implementation of the economic unit strategy, and linking it to sustainability operations	8
0.000	0.760**	Integrated reporting on global warming aims to improve the quality of information provided to stakeholders, provide important information about the ability of entities to create value over time, encourage integrated thinking, and improve accountability and responsibility	9
0.000	0.678**	Integrated GHG reporting helps address financial reporting shortcomings, provides forward-looking information to anticipate potential risks and opportunities, and helps financial analysts and investors assess an entity's ability to create and sustain value over the long term	10
0.000	0.653**	Integrated reporting on global warming should include specific elements such as identifying an identifiable and measurable task topic (elevated phosphate, chromium and copper in water), using criteria as a means of assessing the topic, collecting evidence in a sufficient and appropriate manner, and providing a report that expresses the practitioner's conclusions	11
0.000	0.841**	In the contemporary business world, financial, non-financial and environmental reporting . practices on global warming have become more complex and integrated, especially in the context of global warming and climate change issues	12
0.000	0.620**	Integrated reporting on global warming contributes to enhancing transparency and credibility among entities and stakeholders, by providing comprehensive and transparent information on financial performance, non-financial performance, environmental and social impact, and corporate governance	13
0.000	0.542**	Integrated reporting on global warming contributes to understanding the full impact of the . unit on the environment, society and the economy related to gas emissions into the atmosphere, whether from factories or chimneys, which helps them in making informed and responsible decisions	14
0.000	0.645**	Integrated reporting on wastewater inefficiency helps units improve their management and . performance by providing comprehensive information on all aspects of their business including performance, environmental and social impact and governance	15
0.000	0.628**	There is a need for leading professional and accounting organizations in the field of integrated global warming reporting that play a vital role in promoting integrated reporting, developing standards and guidance related to it, and contributing to enhancing the role of	16

Sig.	Correlation coefficient	Phrases	T
		accountants in improving financial and non-financial reporting	
0.000	0.608**	The dimensions of integrated reporting on global warming include the scientific dimensions, which provide scientific information and data on global warming and climate change	17
0.000	0.779**	Integrated reporting dimensions of global warming include environmental dimensions, which provide information on the environmental impacts of global warming, such as plant and animal extinctions and changes in ecosystems	18
0.000	0.738**	The dimensions of integrated reporting on global warming include economic dimensions, which provide economic information about the economic impacts of global warming, such as adaptation and mitigation costs and its effects on various industries and the economy	19
0.000	0.729**	. Through the integrated dimensions of global warming, comprehensive and integrated reports on global warming can be provided, contributing to a deeper understanding of its effects and directing efforts towards adaptation, mitigation and taking the necessary measures to confront it	20

Source: Prepared by the researcher based on the outputs of the SPSS program, the correlation is statistically significant at a significance level of (0.01).

Table 8.

Internal correlation coefficient of the variable (Fulfilling the requirements of standard 3410).

Sig.	Correlation coefficient	Phrases	T
0.000	0.527**	ISA 3410 applies to assurance procedures relating to the listing of greenhouse gases except where the greenhouse gas listings are part of comprehensive information subject to assurance	1
0.000	0.653**	In each greenhouse gas assertion engagement, the accountant selects a combination of assurance procedures including verification, observation, confirmation, repetition of the calculation, repetition, analytical procedures, and consultation	2
0.000	0.631**	Where compliance is subject to local laws, regulations or emissions trading scheme provisions, this standard will not override those laws, regulations or provisions	3
0.000	0.722**	If local regulations, rules or provisions of the emissions trading scheme differ from this standard, the obligation must be implemented in accordance with the local regulations, rules or provisions, which will not automatically conform to the standard	4
0.000	0.626**	A certified public accountant is entitled to comply with this standard in addition to local laws and regulations and the provisions of the trading program with emissions only when all applicable requirements of this standard are met	5
0.000	0.831**	The objectives of the public accountant include obtaining reasonable or limited assurance about the accuracy of the financial statements and their freedom from material misstatement due to fraud or error	6
0.000	0.752**	The accountant seeks to ensure that the audited financial statements are free from material errors and thus accurately reflect the financial position	7
0.000	0.605**	The accountant submits a report explaining whether the financial statements comply with the applicable accounting and legal standards	8
0.000	0.782**	The public accountant must submit the report in accordance with the requirements of the standard and the conclusions of the chartered accountant, which means the necessity of complying with professional standards and submitting the report in a manner that accurately and transparently explains the conclusions and recommendations	9
0.000	0.608**	The actions in a limited security engagement differ in nature and timing, are	10

Sig.	Correlation coefficient	Phrases	T
		less comprehensive than those carried out in a reasonable security engagement and, consequently, the level of safety achieved is significantly lower than that which would have been achieved had reasonable safety actions been carried out	
0.000	0.616**	Unless prohibited by law or regulation, the accountant should do so in a paragraph of the assurance report under an appropriate heading that clearly indicates that the accountant's conclusion has not been modified in relation to the level of safety achieved that was less than	11
0.000	0.591**	The accountant shall evaluate whether the entity's quantitative measurement methods and financial reporting policies, including the determination of the entity's regulatory limits, are appropriate to its operations and consistent with applicable controls, measurement policies and quantitative data	12
0.000	0.643**	The accountant shall design and implement additional procedures whose nature, timing and scope are consistent with the risks assessed, for the required level of security, reasonable or limited, as appropriate	13
0.000	0.742**	If, at the request of the accountant, the entity tests a particular type of disclosure and corrects any material misstatements that are discovered, the accountant must take certain procedures related to the work performed by the entity to determine whether material misstatements still exist	14
0.000	0.635**	The date of the written statements should be as close to, but not later than, the date of the assurance report, and the accountant should refrain from expressing a conclusion on the GHG declaration or withdrawing from the engagement	15
0.000	0.831**	Other information such as additional data or additional details may affect the accuracy or validity of the information provided	16
0.000	0.752**	The accountant must also be careful to evaluate the reliability of the information provided and ensure that it complies with applicable standards and regulations	17
0.000	0.605**	Additional data may include information about production processes, changes in the environment, or unforeseen events that may affect greenhouse gas emissions and that are likely to affect the accuracy or validity of the information provided	18
0.000	0.782**	If there is any doubt about the validity or reliability of the information, the accountant must take the necessary steps to verify and ensure the accuracy of the information before including it in the report	19
0.000	0.608**	There is concern about a potential lack of consistency and coordination that will accompany the approval of both ISAE(NZ) 3410 and ISO 14064-3 even though the assurance practices will share many similar characteristics	20

Source: Prepared by the researcher based on the outputs of the SPSS program. The correlation is statistically significant at a significance level of (0.01).

Table 9.

Cronbach's alpha coefficient values.

Other	Number of phrases	Cronbach's alpha coefficient
	40	0.964

Source: Prepared by the researcher based on the results of statistical analysis using SPSS.

1.15. Fourth: Descriptive Statistics for Research Variables

1. The first variable labeled (integrated reporting on global warming) was expressed through twenty phrases, as Table (10) shows the arithmetic means, standard deviation, and coefficient of variation related to the responses of the research sample members regarding (integrated reporting on global warming).

Table 10.

Results of descriptive statistical analysis of (integrated reporting on global warming).

Result	Coefficient of variation %	Standard deviation	Arithmetic mean	Questions	T
I agree	%17	0.688	3.99	Voluntary disclosure of fuel combustion gaseous pollutants through Integrated Global Warming Reporting (IGCR) is a strategic decision taken by the Board of Directors or its designee	1
I agree	%28	0.958	3.47	Integrated reporting reports on the presence of pollutants resulting from oil and fat spills should reflect the opinion or decision of the Board of Directors, which contributes to representing the unit honestly and reporting transparently	2
I totally agree	%19	0.792	4.24	Integrated reporting of heavy fuel in the operation of power generation plants is considered as a concept regardless of the number of financial statements or reports issued by the economic unit for the financial period	3
I agree	%18	0.752	4.14	The integrated reporting on the weaknesses of the Ministry of Environment's procedures for power generation plants must be concise to ensure its effectiveness and at the same time contain the basic information that allows the unit's strategy to be understood without the burden of producing inappropriate information	4
I agree	%2	0.826	4.06	Integrated reporting on the absence of emission quality analysis devices represents a case of integrating the different aspects of the economic unit's organizational activities into a single report that shows the extent to which the economic unit's strategy supports environmental aspects	5
I agree	%21	0.857	4.05	Integrated Global Warming Reporting is a report that combines financial and non-financial information on global warming and is a means of communication used by the economic unit in a way that clarifies the link and interaction between the financial, environmental, social, administrative and strategic performance of the economic unit in a summary report	6
I totally agree	0.19	0.792	4.24	The preparation of integrated reports on global warming will be an important development to meet the growing need for additional information on global warming to appear alongside financial statements in formulating economic decisions	7

Result	Coefficient of variation %	Standard deviation	Arithmetic mean	Questions	T
I agree	%18	0.752	4.14	Identifying the reasons for resorting to integrated reporting on global warming enables focusing on financial and non-financial performance and implementation of the economic unit strategy, and linking it to sustainability operations	8
I agree	%2	0.826	4.06	Integrated reporting on global warming aims to improve the quality of information provided to stakeholders, provide important information about the ability of entities to create value over time, encourage integrated thinking, and improve .accountability and responsibility	9
I agree	%21	0.857	4.05	Integrated global warming reporting helps address financial reporting shortcomings, provides forward-looking information to anticipate potential risks and opportunities, and helps financial analysts and investors assess an entity's ability to create and sustain value over the long term	10
I agree	%21	0.857	4.05	Integrated reporting on global warming should include specific elements such as identifying the identifiable and measurable task topic (elevated phosphate, chromium and copper in water), using criteria as a means of assessing the topic, collecting evidence in a sufficient and appropriate manner, and providing a report that expresses the practitioner's conclusions	11
I agree	%27	1.060	3.92	In the contemporary business world, financial, non-financial and environmental reporting practices on global warming have become more complex and integrated, especially in the context of global warming and climate change issues	12
I agree	%19	0.796	4.15	Integrated reporting on global warming contributes to enhancing transparency and credibility among entities and stakeholders, by providing comprehensive and transparent information on financial performance, non-financial performance, environmental and social impact, and corporate governance	13
I agree	%2	0.797	3.99	Integrated reporting on global warming contributes to understanding the full impact of the unit on the environment, society and the economy related to gas emissions into the atmosphere, whether from factories or smokestacks, which helps them in making .informed and responsible decisions	14

Result	Coefficient of variation %	Standard deviation	Arithmetic mean	Questions	T
I totally agree	%13	0.566	4.39	Integrated reporting on wastewater inefficiency helps units improve their management and performance by providing comprehensive information on all aspects of their business including performance, environmental and social .impact and governance	15
I agree	%2	0.821	4.18	There is a need for leading professional and accounting organizations in the field of integrated global warming reporting that play a vital role in promoting integrated reporting, developing standards and guidance related to it, and contributing to enhancing the role of accountants in improving financial and non-financial reporting	16
I agree	%23	0.860	3.74	The dimensions of integrated reporting on global warming include the scientific dimensions, which provide scientific information and data on global warming and climate change	17
I agree	%21	0.829	3.91	Integrated reporting dimensions of global warming include environmental dimensions, which provide information on the environmental impacts of global warming, such as plant and animal extinctions and changes in ecosystems	18
I totally agree	%15	0.666	4.40	The dimensions of integrated reporting on global warming include economic dimensions, which provide economic information about the economic impacts of global warming, such as adaptation and mitigation costs and its effects on various industries and the economy	19
I totally agree	%13	0.556	4.44	Through the integrated dimensions of global warming, comprehensive and integrated reports on global warming can be provided, contributing to a deeper understanding of its effects and directing efforts towards adaptation, mitigation and taking the necessary measures to confront it	20

Source: Prepared by the researcher based on the outputs of the SPSS program

Table 11.

Results of the descriptive statistical analysis of (Achieving the requirements of Standard 3410).

Result	Coefficient of variation %	Standard deviation	Arithmetic mean	Questions	T
I totally agree	%18	0.783	4.25	ISA 3410 applies to assurance procedures relating to the listing of greenhouse gases except where the greenhouse gas listings are part of comprehensive information subject to assurance	1

Result	Coefficient of variation %	Standard deviation	Arithmetic mean	Questions	T
I totally agree	%22	0.906	4.19	In each GHG assertion engagement, the accountant selects a combination of assurance procedures including verification, observation, confirmation, repetition of the calculation, repetition, analytical procedures, and consultation	2
I agree	%23	0.926	4.01	Where compliance is subject to local laws, regulations or emissions trading scheme provisions, this standard will not override those laws, regulations or provisions	3
I agree	%17	0.716	4.18	If local regulations, rules or provisions of the emissions trading scheme differ from this standard, the obligation must be implemented in accordance with the local regulations, rules or provisions, which will not automatically conform to the standard	4
I totally agree	%16	0.696	4.40	A certified public accountant is entitled to comply with this standard in addition to local laws and regulations and the provisions of the trading program with emissions only when all applicable requirements of this standard are met	5
I totally agree	%14	0.575	4.25	The objectives of the public accountant include obtaining reasonable or limited assurance about the accuracy of the financial statements and their freedom from material misstatement due to fraud or error	6
I totally agree	%14	0.627	4.48	. The accountant seeks to ensure that the audited financial statements are free from material errors and thus accurately reflect the financial position	7
I totally agree	%13	0.586	4.40	The accountant submits a report explaining whether the financial statements comply with the applicable accounting and legal standards	8
I totally agree	%14	0.623	4.43	The public accountant must submit the report in accordance with the requirements of the standard and the conclusions of the chartered accountant, which means the necessity of complying with professional standards and submitting the report in a manner that accurately and transparently explains the conclusions and recommendations	9
I totally agree	%15	0.641	4.35	The actions in a limited security engagement differ in nature and timing, are less comprehensive than those carried out in a reasonable security engagement and, consequently, the level of safety achieved is significantly lower than that which would have been achieved had reasonable safety actions been carried out	10

Result	Coefficient of variation %	Standard deviation	Arithmetic mean	Questions	T
I totally agree	%14	0.611	4.48	Unless prohibited by law or regulation, the accountant should do so in a paragraph of the assurance report under an appropriate heading that clearly indicates that the accountant's conclusion has not been modified in relation to the level of safety achieved that was less than	11
I agree	%17	0.720	4.16	The accountant shall evaluate whether the entity's quantitative measurement methods and financial reporting policies, including the determination of the entity's regulatory limits, are appropriate to its operations and consistent with applicable controls, measurement policies and quantitative data	12
I agree	%19	0.770	4.05	The accountant shall design and implement additional procedures whose nature, timing and scope are consistent with the risks assessed, for the required level of security, reasonable or limited, as appropriate	13
I totally agree	%17	0.720	4.19	If, at the request of the accountant, the entity 14 tests a particular type of disclosure and corrects any material misstatements that are discovered, the accountant must take certain procedures related to the work performed by the entity to determine whether material misstatements still exist	14
I totally agree	%15	0.665	4.39	The date of the written statements should be as close to, but not later than, the date of the assurance report, and the accountant should refrain from expressing a conclusion on the GHG declaration or withdrawing from the engagement	15
I totally agree	%15	0.641	4.35	Other information such as additional data or additional details may affect the accuracy or validity of the information provided	16
I agree	%19	0.734	3.92	The accountant must also be careful to evaluate the reliability of the information provided and ensure that it complies with applicable standards and regulations	17
I agree	%17	0.692	4.16	Additional data may include information about production processes, changes in the environment, or unforeseen events that may affect greenhouse gas emissions and that are likely to affect the accuracy or validity of the information provided	18
I totally agree	%19	0.782	4.21	If there is any doubt about the validity or reliability of the information, the accountant must take the necessary steps to verify and ensure the accuracy of the information before including it in the report	19

Result	Coefficient of variation %	Standard deviation	Arithmetic mean	Questions	T
I agree	%19	0.796	4.15	There is concern about a potential lack of consistency and coordination that will accompany the approval of both ISAE(NZ) 3410 and ISO 14064-3 even though the assurance practices will share many similar characteristics	20

1.16. Fifth: Testing and Analyzing The Correlation Between The Research Variables

The first step taken by the researcher in determining the nature of the relationship between the variables is to determine the basic research variables as well as the nature of the relationship between them, as we have two variables, the first is the main variable (independent) represented by the integrated reporting on global warming, and the second variable is what is called the dependent variable (dependent) represented by achieving the requirements of Standard 3410, and the validity and accuracy of the research hypotheses related to the correlation relationships between the research variables that were formulated by referring to the research problem were verified, and the statistical methods for the correlation coefficient (Pearson) were used to determine the type of relationships between the research variables and the statistical program (SPSS), which tests the correlation relationships between the main variables. Below, Table (12) shows all the results of the Pearson correlation coefficient values for the research variables that were assumed.

Table 12.

Correlation coefficient (Pearson) between the research variables.

Morale level	Meet the requirements of standard 3410	Dependent variable Independent variable
0.000	0.875	Integrated global warming reporting

Source: Prepared by the researcher by referring to the SPSS program.

1.16. Sixth: Testing and Analyzing the Regression Relationship Between the Main Research Variables:

The researcher investigated the relationship of influence according to the multiple regression equation between the independent variable represented by (integrated reporting on global warming) and the dependent variable represented by (achieving the requirements of Standard 3410). Table (13) shows the results of the regression equation values that were reached from the results of the questionnaire conducted by the researcher.

Table 13.

Regression coefficient values.

Integrated global warming reporting				Dependent variable Independent variable
Statistical indicators				Meet the requirements of Standard 3410
F	R ²	Sig.	β	
320.752	0.766	0.000	0.875	

Source: Prepared by the researcher by referring to the SPSS program.

1.17. Seventh: Testing the Hypotheses

From the various results that were presented above, the main hypothesis is accepted, which states: The first main hypothesis: "There is a statistical relationship with a significant level of moral significance between integrated reporting on global warming and achieving the requirements of Standard 3410, and the following sub-hypotheses emerge from this hypothesis: The first sub-hypothesis: "There is a significant correlation between integrated reporting on global warming and achieving the requirements of Standard 3410

The second sub-hypothesis: "There is a significant influence relationship between integrated reporting on global warming and achieving the requirements of Standard 3410.

After the researcher learned about the extent of application of the international 3410 requirements standards, a list was designed to examine the extent of application of the international standard on the research sample. It included thirteen paragraphs related to the international standard, as follows:

Table 14.

Checklist of requirements of International Standard 3410 according to the research sample procedu.

Al-Shuaiba refinery			Cycle filter				Requirements according to Standard 3410	T
Not applicable	Partially implemented	Applied	Not applicable	Partially implemented	Applied	Annual period		

Source: Prepared by the researcher by referring to the research sample records..

The three phrases "applied", "partially applied" and "not applied" were assessed according to the following table:

Table 15.

Scores of the given choices.

Not applicable	Partially implemented	Applied
1.99-1	2- 2.99	3

1.18. Eighth: Preparing A Proposal for the Confirmation Report for the Research Sample According to Standard 3410

The researcher will, at this stage, prepare a complete and detailed confirmation report based on the integrated reporting for the research sample according to the international standard 3410 on global warming. This is done by confirming the basics set in the standard through the ISAE model to ensure the correctness of the conformity of the conditions that must be implemented in the reporting and then proceeding to prepare a confirmation report to include a complete detail on global warming and what the conditions are available for it, as follows:

1. Preparing a proposal for the integrated reporting report for the cycle refiner according to Standard 3410

Refiner's responsibility: The cycle refiner is responsible for preparing the list of greenhouse gases according to the controls applied to the list of greenhouse gases. This responsibility includes Design, implement and maintain internal control relevant to the preparation of greenhouse gas inventories that are free from material misstatement, whether due to fraud or error. As discussed in the greenhouse gas inventory, the measurement of greenhouse gases is subject to inherent uncertainty due to the incompleteness of the practical knowledge used to determine the emission factors and the values needed to aggregate the emissions of the various gases. Entity responsible for setting controls: Where the GHG inventory is prepared to meet regulatory disclosure programmes or emissions trading schemes with applicable controls and reporting format, it is likely to be clear from the circumstances of the engagement that the regulatory authority or entity responsible for the scheme has set the controls, but in voluntary reporting circumstances, it may not be clear who has set the controls unless stated in the explanatory notes accompanying the GHG inventory. The auditor's responsibility is subject to the

auditor's responsibility to authenticate the statements issued by the liquidator and to express an opinion supported by the financial statements on the final conclusion, which must comply with the requirements of the International Auditing Standard 3410, as well as the auditor's responsibility in professional judgment to determine the extent of the required understanding, and the nature, timing and extent of the procedures for identifying and assessing the risks of material misstatement required, to reach reasonable or limited assurance, as appropriate. The auditor's main consideration is whether the understanding reached, and the identification and assessment of risks, are sufficient to meet the objective specified in this standard. The understanding required of the auditor is less in depth than that of management with regard to the management of the entity, and the understanding in a limited assurance engagement is less in depth than in an assurance engagement. Reasonable, as well as the nature, timing and extent of procedures for identifying and assessing the risks of material misstatement in a limited assurance engagement and are less than in a reasonable assurance engagement. Independence and Quality Management: We have complied with the independence requirements and other requirements contained in the International Code of Ethics for Professional Accountants, including the International Independence Standards adopted in the Republic of Iraq, which are based on the fundamental principles of integrity, objectivity, professional competence, due care, confidentiality and professional conduct.

Preparing the Proposal for the Assurance Report: First, the accountant must submit a notification request to the competent authorities to conduct integrated reporting in accordance with the Global Warming Standard 3410 as follows:

To the Department of
Confirmation engagement date:
Deadline:
Audit start time:
Activities required to complete the audit:
With many thanks

Figure 11.
Request for a notification of engagement.

Table 16.
Checklist required to be implemented to conduct the confirmation report.

Accountant's conclusion	Examination	Procedure	T
	Lack of credibility of data	Quasi-reliability of the data	Credibility of data

Based on this table, the accountant can determine the necessary steps to improve the quality of data and ensure its credibility, which contributes to improving the reporting process and increasing confidence in the implementation of integrated reporting and regulatory authorities. After preparation, the legal accountant issues and collects information and issues the final report as follows:

Table 17.

The confirmation report for the cycle liquidator according to Standard 3410.

Global warming confirmation report	Entity name: Dora refinery
1. Objectives:	
- To obtain reasonable assurance or limited assurance as to whether the greenhouse gas statement is free from material misstatement, whether due to fraud or error.	
- To prepare a report, based on the auditor's findings, on the following:	
- In the case of a reasonable assurance engagement, whether the greenhouse gas statement is prepared, in all material respects, in accordance with the applicable criteria; or in the case of a limited assurance engagement, whether the auditor has become aware, based on the procedures performed and the evidence obtained, of reasons to believe that the greenhouse gas statement is not prepared, in all material respects, in accordance with the applicable criteria;	
-To report other matters required by ISA 3410, based on the auditor's findings.	
(Scope of the confirmation report: Greenhouse gas emissions (global warming) .2	
Legal Accountant: Ms. Safa Ali Rashid .3	
Place of Assurance Report and Date of Implementation: Refinery - Procedure Period 2021-2023 .4	
Audit Standard Used: International Auditing Standard 3410 .5	
Beneficiary Representative: General Manager of Middle Oil Company .6	
7. Planning:	
- Identify the characteristics of the engagement that determine its scope;	
- Verify the objectives of the engagement report in order to plan the timing of the engagement and the nature of the required communications;	
- Consider factors that, in the professional judgment of the auditor, are important in directing the efforts of the engagement team;	
- Consider the results of the engagement acceptance or continuation procedures and, where appropriate, the relevance of knowledge gained from other engagements that the engagement partner has performed for the entity;	
- Verify the nature, timing and extent of the resources required to perform the engagement, including the involvement of experts and other auditors.	
-Determine the impact, if any, of the entity's internal audit function on the engagement.	
8. Relative importance when planning and implementing engagement:	
- Determine the relative importance and relative importance of implementation when planning engagement	
- Determine the relative importance of the greenhouse gas inventory	
-Determine the relative importance of implementation for the purposes of assessing the risks of material misstatement and determining the nature, timing and extent of additional actions	
9 . Understanding the refinery and its environment:	
- Understanding the industry, regulatory and other relevant external factors, including applicable controls.	
- Understanding the nature of the operations within the refinery's corporate boundaries.	
- Understanding the uncertainties associated with the quantities reported in the GHG inventory.	
- Understanding changes from the prior period in the nature or extent of operations, including whether there have been any mergers, acquisitions or sales of emitting sources, or any outsourcing of significant emitting functions.	
- Understanding the frequency and nature of operational disruptions.	
- The facility's selection and application of quantification methods and reporting policies.	

-
- Understanding the requirements of applicable controls related to the estimates, including related disclosures.
 - Understand the entity's objectives and strategy in relation to climate change, and the economic, regulatory, physical and reputational risks associated with it.
 - Oversee and be responsible for emissions information within the entity.
 - Understand whether the refiner has an internal control function, its activities and key results relating to emissions.
- Procedures for understanding, identifying and assessing the risks of material misstatement
-

10. General responses to risks of material misstatement:

- Design and implement general responses to address the risks of material misstatement assessed at the greenhouse gas inventory level.
- Design and implement additional procedures that respond in nature, timing and extent to the risks of material misstatement assessed.
-

11. Written representations:

- Fulfilling the responsibility for preparing the GHG statement, including comparative information where applicable, in accordance with the applicable criteria, as set out in the terms of engagement;
 - Providing the auditor with all relevant information and access as agreed in the terms of engagement and explaining all relevant matters in the GHG statement;
 - The effects of uncorrected misstatements are not material, individually or in the aggregate, to the GHG statement.
 - Significant assumptions used in preparing the estimates are reasonable;
 - Communicating to the auditor all deficiencies in internal control that they know of that are relevant to the engagement and are not clearly insignificant;
 - Disclosing to the auditor their knowledge of any actual, suspected or alleged fraud or non-compliance with laws or regulations.
 - The date of written representations shall be as close as possible to the date of the assurance report, but no later than that date.
- Refraining from expressing a conclusion on the GHG statement or withdrawing from the engagement, when withdrawal is possible under applicable laws or regulations
-

. Subsequent events:

- Consider whether events occurring between the date of the GHG statement and the date of the assurance report require an adjustment or disclosure in the GHG statement.
- Respond appropriately to facts that become known to the auditor after the date of the assurance report.
-

13. . Comparative information:

- Present comparative information with current emissions information and cover some or all of that comparative information in the auditor's conclusion.
 - Ensure that the comparative information is consistent with the quantities and other disclosures presented in the prior period, or where appropriate, has been properly restated and the restatement has been adequately disclosed.
 - Ensure that the policies for measuring the quantities reflected in the comparative information are consistent with those applied in the current period.
 - Ensure that the matter is discussed with persons with appropriate responsibilities and knowledge of the relevant matters within the entity and that appropriate procedures are implemented in the circumstances.
- Consider the impact on the assurance report
-

14 . Documentation:

- Documenting the distinguishing characteristics of the items or special matters tested;
 - Documenting who performed the engagement work and the date on which this work was completed;
 - Documenting who examined the engagement work performed, and the date and extent of this examination.
- Documenting discussions that addressed significant matters with the facility and others, including the nature of the significant matters discussed, the timing of these discussions, and the parties to the discussion.

15. Quality Management:

- Managing issues identified in relation to compliance with relevant ethical requirements and how they were resolved;
 - Managing conclusions regarding compliance with the independence requirements applicable to the engagement, and any relevant discussions with the firm to support those conclusions;
 - Managing conclusions reached regarding the acceptance and continuation of client relationships and assurance engagements;
- Managing the nature and scope of consultations undertaken during the course of the engagement, and the conclusions resulting therefrom.

16. Integrated conclusion:

Based on the procedures carried out by the accountant, he reached several conclusions, which are:

1. We carried out a reasonable assurance engagement for the attached greenhouse gas statement for the Dora refinery for the year ending December 31, 2023, which consists of the emissions inventory and explanatory notes on the pages referred to in the statements. This engagement was carried out by a multidisciplinary team that includes chartered accountants, headed by accountant Safa Ali Rashid in the field of assurance, engineers and environmental scientists.
 2. The reliability of the data provided by the refinery has been verified, with accuracy and correctness in numbers and figures, and in line with the nature of the thermal emissions issued for the year 2023.
 3. It has been verified that the Dora refinery is based on the principles and applications of the International Auditing Standard 3410 and in line with the global warming standard.
- It has been confirmed that there are slight increases in the refinery's thermal emissions rates, which indicates an indication of fluctuations in the emissions rate in the future, leading to a violation in thermal emissions

Date: 2024/16/2

Signature:

Auditing Company Name: Safa Ali Rashid Company

Address:

2. Preparing a proposed report for the confirmation report for the Shuaiba Refinery according to Standard 3410

Refinery Responsibility: The Shuaiba Refinery is responsible for preparing the list of greenhouse gases in accordance with the controls applied in the list of greenhouse gases. This responsibility includes designing, implementing and maintaining internal control related to preparing lists of greenhouse gases free from material distortion, whether due to fraud or error. According to what is discussed in the list of greenhouse gases, measuring the amount of greenhouse gases is subject to inherent uncertainty due to the incompleteness of the practical knowledge used in determining the emission factors and the values necessary to collect the emissions of the various gases. Entity responsible for setting controls: Where the GHG inventory is prepared to meet regulatory disclosure programmes or emissions trading schemes with applicable controls and reporting format, it is likely to be clear from the circumstances of the engagement that the regulatory authority or entity responsible

for the scheme has set the controls, but in voluntary reporting circumstances, it may not be clear who has set the controls unless stated in the explanatory notes accompanying the GHG inventory. The auditor's responsibility: The auditor's responsibility is subject to authenticating the statements issued by the liquidator and expressing an opinion supported by the financial statements on the final conclusion, which must comply with the requirements of the International Auditing Standard 3410, as well as the auditor's responsibility in professional judgment to determine the extent of the required understanding and the nature, timing and extent of the procedures for identifying and assessing the risks of material misstatement required to reach reasonable or limited assurance, as appropriate. The auditor's main consideration is whether the understanding reached and the identification and assessment of the risks are sufficient to meet the objective specified in this standard. The understanding required of the auditor is less profound than that of management with regard to the liquidator's management, and the understanding in a limited assurance engagement is less profound than that in a reasonable assurance engagement. The nature, timing and extent of procedures to identify and assess the risks of material misstatement in a limited assurance engagement are less than in a reasonable assurance engagement. Independence and Quality Management: We have complied with the independence requirements and other requirements contained in the International Code of Ethics for Professional Accountants, including the International Independence Standards adopted in the Republic of Iraq, which are based on the fundamental principles of integrity, objectivity, professional competence, due care, confidentiality and professional conduct. Preparing the Proposal for the Assurance Report: First, the accountant must submit a notification request to the competent authorities to conduct integrated reporting in accordance with the Global Warming Standard 3410.

Table 18.

Al-Shuaiba refinery confirmation report according to standard 3410.

Global warming confirmation report	Entity name: Al-Shuaiba refinery
1. Objectives:	
- To obtain reasonable assurance or limited assurance as to whether the greenhouse gas statement is free from material misstatement, whether due to fraud or reporting error, based on the findings of the auditor, regarding the following:	
- In the case of a reasonable assurance engagement, whether the greenhouse gas statement is prepared, in all material respects, in accordance with the applicable criteria; or in the case of a limited assurance engagement, whether the auditor has become aware, based on the procedures performed and the evidence obtained, of what causes him to believe that the greenhouse gas statement is not prepared, in all material respects, in accordance with the applicable criteria.	
-To report other matters required by Standard 3410, based on the findings of the auditor.	
(Scope of Assurance Report: Greenhouse Gas Emissions (Global Warming) .2	
Legal Accountant: Ms. Safa Ali Rashid .3	
Place of Assurance Report and Date of Implementation: Refinery - Procedure Period 2021-2023 .4	
Audit Standard Used: International Auditing Standard 3410 .5	
Beneficiary Representative: General Manager of Southern Oil Company .6	
7. Planning:	
- Identify the engagement characteristics that determine its scope.	
- Verify the engagement reporting objectives in order to plan the timing of the engagement and the nature of the required communications.	
- Take into account factors that, in the professional judgment of the auditor, are important in directing the engagement team's efforts.	
- Take into account the results of the engagement acceptance or continuation procedures and, where	

appropriate, the relevance of knowledge gained from other engagements that the engagement partner has performed for the liquidator.

- Verify the nature, timing and extent of the resources required to perform the engagement, including the involvement of experts and other certified public accountants.

- Determine the impact of the liquidator's internal audit function, if any, on the engagement.

8. Relative importance when planning and implementing the engagement:

- Determine the relative importance and relative importance of implementation when planning the engagement.

- Determine the relative importance of the greenhouse gas inventory.

- Determine the relative importance of implementation for the purposes of assessing the risks of material misstatement and determining the nature, timing and extent of additional actions.

9. Understanding the refinery and its environment:

- Understanding the industry, regulatory and other relevant external factors, including applicable controls.

- Understanding the nature of the operations within the refinery's corporate boundaries.

- Understanding the uncertainties associated with the quantities reported in the GHG inventory.

- Understanding changes from the previous period in the nature or extent of operations, including whether there have been any mergers, acquisitions or sales of emitting sources, or any outsourcing of significant emitting functions.

- Understanding the frequency and nature of operational disruptions.

- The refinery's selection and application of quantification methods and reporting policies.

- Understanding the requirements of applicable controls related to the estimates, including related disclosures.

- Understand the entity's objectives and strategy in relation to climate change, and the economic, regulatory, physical and reputational risks associated with it.

- Oversee and be responsible for emissions information within the entity.

- Understand whether the liquidator has an internal audit function, its activities and key findings relating to emissions.

- Procedures for understanding, identifying and assessing the risks of material misstatement

10. General responses to risks of material misstatement:

- Design and implement general responses to address the risks of material misstatement assessed at the GHG inventory level.

- Design and implement additional actions that respond in nature, timing and extent to the risks of material misstatement assessed.

11. Written representations:

- Fulfilling the responsibility for preparing the GHG statement, including comparative information where appropriate, in accordance with the applicable criteria, as set out in the terms of engagement.

- Providing the auditor with all relevant information and allowing access as agreed in the terms of engagement and explaining all relevant matters in the GHG statement;

- The effects of uncorrected misstatements are not material, individually or in aggregate, to the GHG statement.

- Significant assumptions used in preparing the estimates are reasonable

- Informing the auditor of all deficiencies in internal control that they know of that are relevant to the engagement and are not clearly insignificant.

- Disclosing to the auditor their knowledge of any actual, suspected or alleged fraud or non-compliance with laws or regulations.

- The date of written representations shall be as close as possible to the date of the assurance report, but

no later than that date.

-Refraining from expressing a conclusion on the GHG statement or withdrawing from the engagement, when withdrawal is possible under applicable laws or regulations.

12. Subsequent events:

- Consider whether events occurring between the date of the GHG statement and the date of the assurance report require an adjustment or disclosure in the GHG statement.

-Respond appropriately to facts that become known to the auditor after the date of the assurance report.

13. Comparative information:

- Present comparative information with current emissions information and cover some or all of that comparative information in the auditor's conclusion.

- Ensure that the comparative information is consistent with the quantities and other disclosures presented in the previous period, or where appropriate, has been properly restated and the restatement has been adequately disclosed.

- Ensure that the policies for measuring the quantities reflected in the comparative information are consistent with those applied in the current period.

- Ensure that the matter is discussed with persons with appropriate responsibilities and knowledge of the relevant matters within the entity and that appropriate procedures are implemented in the circumstances

Consider the impact of this on the assurance report

14. Documentation:

- Document the distinguishing characteristics of the items or special matters tested.

- Document who performed the engagement work and the date on which this work was completed.

- Document who examined the engagement work performed, and the date and extent of this examination

-Document the discussions that addressed the important matters with the facility and others, including the nature of the important matters discussed, the timing of these discussions, and the parties to the discussion.

15. Quality Management:

- Managing issues identified in relation to compliance with relevant behavioural requirements and how they were resolved.

- Managing conclusions regarding compliance with the independence requirements applicable to the engagement, and any relevant discussions with the firm to support those conclusions.

- Managing conclusions reached regarding the acceptance and continuation of client relationships and assurance engagements.

-Managing the nature and scope of consultations undertaken during the course of the engagement, and the conclusions resulting from them.

16. Integrated Conclusion:

Based on the procedures carried out by the accountant, he reached several conclusions, which are:

1. We carried out a reasonable assurance engagement for the attached greenhouse gas statement for the Shuaiba Refinery for the year ending December 31, 2023, which consists of the emissions inventory and explanatory notes on the pages referred to in the statements. This engagement was carried out by a multidisciplinary team that includes chartered accountants, headed by accountant Safa Ali Rashid in the field of assurance, engineers and environmental scientists.

2. The reliability of the data provided by the refinery has been verified, with accuracy and correctness in numbers and figures, and in line with the nature of the thermal emissions issued for the year 2023.

-
3. It has been verified that the Dora refinery is based on the principles and applications of the International Auditing Standard 3410 and its global warming standards.
 4. It has been confirmed that there is a reduction in the refinery's thermal emissions, which indicates an indication of an administrative and technical desire in the refinery to reduce emissions rates to comply with international audit procedures on global warming.
 5. Through inquiries, we obtained an understanding of the control environment at Shuaiba Refinery and the information systems related to measuring and reporting emissions, but we did not evaluate the design of specific control activities, obtain evidence about their implementation, or test their operational effectiveness.
 6. We evaluated whether Shuaiba Refinery's methods for making estimates were appropriate and whether those methods had been applied consistently, but our procedures did not include testing the data on which the estimates were based or developing our own estimates separately to evaluate Shuaiba Refinery's estimates against them.
 7. We conducted field visits to three sites to assess the completeness of the emission sources, data collection methods, source data and relevant assumptions applied to these sites. The sites identified for testing were selected taking into account their emissions compared to the total emissions, emission sources and sites selected in previous periods.
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Date: 2024/16/2

Signature:

Auditing Company Name: Safa Ali Rashid Company Address:

2. Conclusion

After the researcher studied the role of integrated reporting on global warming in light of achieving the requirements of International Auditing Standard 3410 and in a sample of the local environment (Dura and Shuaiba refineries), the researcher reached a set of results and recommendations, which are:

In light of the theoretical study and the applied study of the research, the following conclusions were reached:

1. The emergence of integrated reporting represents a qualitative addition to the services provided by the auditor, as his role has changed significantly from the traditional services related to the financial statements, and the auditor has become providing new services represented in his emphasis on ensuring the information and its quality, which means that his role is no longer limited to verifying financial correctness only, but also covers other aspects to ensure transparency and accuracy in the information provided, especially with regard to global warming.
2. Professional services related to the SSARS list of preparation and review standards include preparation and organization services related to unaudited financial statements, as the ARSC (Accounting Services Regulatory Standards Committee) has provided its standards symbolized by the symbol "AR", which has played an effective and efficient role in organizing these services.
3. Professional services related to the SSAES list of attestation standards include a variety of services related to attesting financial and non-financial information according to AICPA standards, as these services bear the symbol (AT) and include providing attestation certificates by the auditor regarding the accuracy and reliability of the information prepared by management.
4. Reasonable integrated reporting, which is less assurance than absolute assurance, but at a high level, and is related to the extent of obtaining the necessary evidence for the practitioner that enables him to reach a positive conclusion, i.e. there are no significant distortions in the circumstances of the agreed assurance engagement. The working circumstances include the terms of the engagement, the characteristics of the subject matter, the standards used, the needs of users, and other matters affecting the assurance engagement, as the goal of reasonable assurance is to reduce the risks of the assurance engagement to an acceptable level in the circumstances of the engagement.
5. Limited integrated reporting is a process that aims to reduce the risk of an assurance engagement to a level that is

acceptable in the circumstances of the engagement, but where that risk is greater than in a reasonable assurance engagement as a basis for a negative form of expression of the accountant's conclusion. 6. Standard No. (3410) entitled Assurance Engagements on Global Warming Other than Audits or Reviews of Historical Financial Information represents the most important standards issued by the International Auditing and Assurance Standards Board (IAASB) regarding assurance services on global warming, as this standard achieves three purposes: describing the objectives of assurance engagements that aim to provide reasonable or limited assurance, setting standards and providing guidance for practitioners to perform engagements, and acting as a framework for developing specific standards for special types of assurance services. 7. Updating the systems and programs used in preparing and implementing the International Auditing Standard 3410 on Global Warming is of utmost importance to ensure the provision of accurate and transparent financial information that reflects the financial impact of the environmental challenges associated with global warming. With increasing pressure from investors and regulatory authorities for economic units to disclose risks and opportunities associated with climate change, improving the systems and programs used in preparing financial reports becomes of utmost importance, as updating the systems and programs can include many diverse aspects. 8. The statistical studies conducted by the researcher within the practical aspect indicate the existence of a positive relationship with statistical significance between the independent variable (integrated reporting on global warming) and the dependent variable (achieving the requirements of Standard 3410). Therefore, refineries that have a high level of emissions in their operations tend to provide more transparent and detailed confirmation reports on the effects of climate change on their financial and non-financial performance.

3. Recommendations

In light of the conclusions reached and in order to activate the role of integrated reporting on global warming in achieving the requirements of International Auditing Standard 3410 and providing assurance services, the following recommendations can be made:

1. The researcher recommends preparing a proposed framework for integrated reporting on global warming to be referred to when problems occur in scientific application, including a clear and comprehensive description of the theoretical concepts associated with all types of assurance services, especially with regard to integrated reporting on global warming according to International Auditing Standard 3410.

2. The researcher recommends agreeing on determining the appropriate standards for integrated reporting on global warming and providing assurance services, as there are various standards that can be used for one type of assurance services according to International Auditing Standard 3410.

3. The researcher recommends that the International Federation of Accountants play a role similar to the American Institute of Certified Public Accountants in issuing a set of standards for each type of assurance services, in order to achieve their wider spread in the work environment and in addressing global warming accounting. 4. The researcher recommends that the assurance report be specified in a unified and consistent form and format with the integrated global warming reporting, and that it be different according to the field of work and according to the diversity of assurance services, in order to be compatible with the type of service provided, while adhering to the basics of the commonly known report according to the requirements of International Auditing Standard 3410.

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