海美侬 harmony

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淄博齐翔腾达化工股份有限公司

Zibo Qixiang Tengda Chemical Co., Ltd.

30万吨/年环氧丙烷项目

300,000t/a HPPO Project

环境影响报告书

Environmental Impact Assessment Report

山东海美侬项目咨询有限公司

Shandong Harmony Project Consulting Co., Ltd.

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概 述
Overview

一、建设单位及现有项目概况

I. About the Employer and Existing Projects

淄博齐翔石油化工集团有限公司是集科、工、贸于一体的自主经营、自负盈亏、具有独立法人资格的淄博市股份制企业，其前身为齐鲁石化公司直属集体企业，主营化工产品、化工助剂、橡胶制品、工程承揽等业务，现有从业人员2000余人，其中工程技术人员1161人，公司销售收入超过40亿元。

Zibo Qixiang Petrochemical Industry Group Co., Ltd. is a joint-stock enterprise with independent legal personality. It integrates science, industry and trade and is responsible for its own profits and losses. Previously a collective enterprise directly under Sinopec Qilu Petrochemical Company, it is mainly engaged in chemical products, chemical additives, rubber products, engineering contracts and other businesses, owning over 2,000 employees, including 1,161 engineers and technicians, and achieving a sales income of over RMB4 billion.

淄博齐翔腾达化工股份有限公司（以下简称“齐翔腾达”）是淄博齐翔石油化工集团有限公司的子公司，成立于2002年1月，依托母公司的技术、人员、市场等资源发展成为具有独立法人资格的淄博市股份制企业。

Established in January 2002, Zibo Qixiang Tengda Chemical Co., Ltd. (hereinafter referred to as “Qixiang Tengda Chemical”), a subsidiary of Zibo Qixiang Petrochemical Industry Group Co., Ltd., relied on the parent company’s technology, personnel, market and other resources to develop into a joint-stock enterprise with independent legal personality in Zibo.

目前齐翔腾达有两个厂区，一个在齐鲁化学工业区东部区域（以下简称老厂区），另一个在齐鲁化学工业区西南角区域（以下简称新厂区），新老厂区之间的距离约为6公里。老厂区和新厂区现有项目环保手续齐全，各项污染物达标排放。

Qixiang Tengda Chemical currently has two plant areas, one in the east of Qilu Chemical Industry Park (hereinafter referred to as the “old plant area”) and the other in the southwest corner of Qilu Chemical Industry Park (hereinafter referred to as the “new plant area”), with a distance of about 6 kilometers between the both plant areas. Existing projects in both the old and new plant areas have complete environmental protection procedures, and all pollutants are of up-to-standard discharge.

老厂区现有MTBE装置建设项目、丁烯分离项目、8万吨/年甲乙酮项目、MTBE技术改造和碳四综合利用项目、碳四综合利用项目，建有2台35t/h循环流化床锅炉。

In the old plant area, there are MTBE plant construction project, butene separation project, 80,000 t/a MEK project, MTBE technical renovation, C4 comprehensive utilization project and C4 comprehensive utilization project, with two 35t/h circulating fluidized bedboilers equipped.

新厂区位于齐鲁化学工业区，南沣路北侧、冯北路西侧。新厂区现有项目包括年产10万吨丁二烯项目、15万吨/年丁二烯装置改扩建项目、年产7万吨稀土顺丁橡胶项目、年产15万吨环保新材料（PBS）项目、45万吨/年低碳烷烃脱氢制烯烃及综合利用项目、污水处理工程项目、金山污水厂扩建项目、催化剂制备

及评价装置项目、液化轻烃装卸车设施扩建项目、热能综合利用技术改造项目、400m3/h废水回用技术改造项目等；已建成但未投产的项目为清洁燃气改造项目、清洁燃气改造-危废焚烧炉项目，在建项目为70万吨/年丙烷脱氢项目、40万吨/年叔丁醇及配套20万吨/年MMA项目、5万吨/年异丁烯装置项目。现有项目环保手续齐全。

The new plant area is located in Qilu Chemical Industry Park, north to Nanfeng Road and west to Fengbei Road. Existing projects in the new plant area include the 100,000t/a Butadiene Project. 150,000t/a BD plant Renovation and Expansion Project, 70,000t/a Rare Earth BR Project, 150,000t/a New Environmental Protection Material (PBS) Project, 450,000t/a Low-carbon Alkane Dehydrogenation to Olefin and Comprehensive Utilization Project, sewage treatment project, Jinshan Sewage Plant Expansion Project, catalyst preparation and assessment plant project, liquefied light hydrocarbon loading and unloading facility expansion project, thermal energy comprehensive utilization technical renovation project, 400m³/h Wastewater Reuse Technical Renovation Project, etc.; Projects that have been completed, but not put into operation include Clean Gas Transformation Project and Clean Gas Transformation-Hazardous Waste Incinerator Project. Projects under construction include 700,000t/a PDH Project, 400,000t/a TBA and Supporting 200,000t/a MMA Project and 50,000t/a Isobutene Plant Projects. All environmental protection procedures of existing projects have been gone through.

二、拟建项目基本情况

II. About the Proposed Project

按照淄博齐翔腾达化工股份有限公司的发展规划，为充分利用在建项目“淄博齐翔腾达化工股份有限公司70万吨/年丙烷脱氢项目”丙烯，做到炼化一体化，实现产业链延长、效益最大化，努力发展核心业务、做大总量、降低成本、提高资本回收率的发展战略。齐翔腾达计划在厂区内投资375520万元建设淄博齐翔腾达化工股份有限公司30万吨/年环氧丙烷项目，项目占地面积约78750m^2。

According to the development plan of Zibo Qixiang Tengda Chemical Co., Ltd., to make full use of propylene in the ongoing project "700,000t/a PDH Project of Zibo Qixiang Tengda Chemical Co., Ltd.", realize refining-chemical integration, and achieve industrial chain extension and maximum benefit, the best efforts shall be made to promote the development strategy of striving to develop core businesses, increasing the volume dose, reducing costs and improving capital recovery rate. Zibo Qixiang Tengda Chemical Co., Ltd. plans to invest RMB3755.2 million in the plant area to build a 300,000t/a HPPO project, which covers an area of 78,750m².

拟建项目已备案，项目代码为2019-370300-26-03-045391，备案主要建设内容为年产20.5万吨双氧水装置、年产30万吨环氧丙烷装置，备案中双氧水装置规模按照100%过氧化氢备案，拟建项目配套建设的双氧水装置生产的为70%双氧水，折算为70%的双氧水规模是292857.1t/a，供给环氧丙烷装置使用。拟建项目同时配套建设废气、废水治理措施，配套公辅工程建设，事故水池依托齐翔腾达。

The proposed project has been filed, with a project code of 2019-370300-26-03-045391. Main construction contents so filed include 205,000t/a hydrogen peroxide plant and 300,000t/a HPPO plant. The scale of the hydrogen peroxide plant filed is filed as 100% hydrogen peroxide. The hydrogen peroxide plant to be built in the

proposed project produces 70% hydrogen peroxide; so the scale is 292,857.1t/a of 70% hydrogen peroxide after conversion, and such 70% hydrogen peroxide is supplied to the HPPO plant for use. Additionally, the proposed project will be equipped with waste gas and wastewater treatment measures, public and auxiliary projects, and the emergency water tank is built with the support of Qixiang Tengda Chemical Co., Ltd.

三、环境影响评价工作过程

III. Process of Environmental Impact Assessment

淄博齐翔腾达化工股份有限公司司委托山东海美侬项目咨询有限公司承担该项目的环境影响评价工作。项目组接受委托后立即组织人员到工程建设所在地进行了现场踏勘与实地调查，收集了项目有关资料及区域环境质量现状资料，对现有工程和在建工程进行了调查。报告编制期间根据项目排污特点及周边地区的环境特征，开展了环境现状调查监测与评价工作，编制工程分析，对各环境要素进行影响预测与评价。项目组在以上工作的基础上完成了环境影响报告书。

Zibo Qixiang Tengda Chemical Co., Ltd. entrusted Shandong Harmony Project Consulting Co., Ltd. to undertake the EIA of the Project. Immediately after accepting the entrustment, the project team organized related personnel to carry out site survey and field investigation at the project site, which has collected relevant project data and regional environmental quality status data, and investigated existing projects and projects under construction. During the preparation of the report, according to the characteristics of the project pollution discharge and the environmental characteristics of the surrounding areas, efforts were made to carry out survey, monitoring and evaluation of the environmental status, prepare the engineering analysis, and predict and evaluate the impact of various environmental factors. The project team completed the environmental impact report based on the above works.

本次环评期间，建设单位采用网站公示、报纸公示等形式向公众介绍项目信息，调查公众对该项目情况的意见和建议。公示期间，未收到公众的电话、邮件、书面信件或其他任何关于本项目的环境保护方面的反馈意见。周边被调查公众对项目建设未有反对意见。建设单位将公众参与相关内容单独编制成册与本环境影响评价报告书一并上报审批主管部门。

During this EIA, the Employer introduced the project information to the public in the form of website announcement and news release, and investigated the public opinions and suggestions on the Project. During the public disclosure period, no phone calls, mails, written letters or any other feedback from the public on the environmental protection of the Project was received. The public investigated in surrounding areas has no objection to the project construction. The Employer will separately compile the relevant contents of public participation into a book and submit it to the competent department of examination and approval together with this environmental impact assessment report.

四、分析判定相关情况

IV. Analysis and Determination of Relevant Conditions

拟建项目属于《产业结构调整指导目录（2019年本）》和《淄博市人民政府办公厅关于印发淄博市产业结构调整指导意见和指导目录的通知》（淄政办发

[2011]35号）中允许类，符合产业政策要求。

The proposed project falls under the category of allowed projects in the Catalog for Guiding Industry Restructuring (2019 Edition) and the Notice of the General Office of Zibo People's Government on Issuing Opinions and Catalogue of Industrial Structure Adjustment in Zibo City (ZZBF [2011] No.35), which conforms to industrial policies.

根据《淄博市城市总体规划》（2011-2020）及《齐鲁化学工业区总体发展规划--土地利用规划》（2017-2025年），项目所在地属于工业用地，符合淄博市城市总体规划以及齐鲁化学工业区土地利用规划的要求。根据《关于齐鲁化学工业区管委会齐鲁化学工业区环境影响报告书的审查意见》（淄环审[2017]58号），本项目位于精细化工区内，该区域重点发展碳四产业链、聚氨酯产业链、精细化学品及化工新材料产品链，本项目的建设符合齐鲁化学工业区的产业定位要求。

According to the Urban Master Planning of Zibo City (2011-2020) and the Qilu Chemical Industry Park Master Development Planning - Land Use Planning (2017-2025), the project site is classified as industrial land, which conforms to Urban Master Planning of Zibo City and Qilu Chemical Industry Park Land Use Planning. According to the Review Opinion on Environmental Impact Report of Qilu Chemical Industry Park of Qilu Chemical Industry Park Administrative Committee (ZHS [2017] No. 58), the project is located in the Fine Chemical Industry Park, which focuses on the development of C4 industrial chain, PU industrial chain, fine chemicals and new chemical materials product chain. The construction of the project meets the requirements of the industrial positioning of Qilu Chemical Industry Park.

拟建项目大气污染源为焚烧炉废气、活性炭吸附装置有机废气和污水处理站废气，本项目废气均达标排放。生产废水经配套建设的废水预处理设施处理后和公辅工程废水及生活污水满足金山污水处理场进水指标后排入金山污水处理场处理。拟建项目主要噪声源经基础减振、隔声、消声等措施处理后，厂界能够达标排放。生产过程产生的固体废物及职工生活垃圾等均妥善处置，不外排。

Air pollution sources of the proposed project are incinerator waste gas, organic waste gas from activated carbon adsorption device and waste gas from sewage treatment plants; the waste gas of the Project is all of up-to-standard discharge. Production wastewater is discharged into Jinshan Sewage Treatment Plant for treatment after being treated by supporting wastewater pretreatment facilities and after the wastewater from public & auxiliary works and domestic sewage meet the influent index of Jinshan Sewage Treatment Plant. After main noise sources of the proposed project are treated by measures such as foundation vibration reduction, sound insulation and noise elimination, the up-to-standard discharge may be realized at plant boundaries. Solid waste and workers' municipal solid wastes generated in the production process shall be properly disposed of and not discharged outside.

根据项目的工程分析情况及周边环境特征以及相关导则情况，确定环境空气的评价等级为一级，地表水评价等级为三级B，地下水进行一级评价，声环境评价等级为三级，环境风险评价等级为一级，土壤环境影响评价为二级评价。

According to the engineering analysis of the Project, the characteristics of surrounding environment, and relevant guidelines, it is determined that the assessment level of ambient air is Level 1, the assessment level of surface water is Level 3B, the

assessment level of groundwater is Level 1, the assessment level of acoustic environment is Level 3, the assessment level of environmental risk is Level 1, and the assessment level of soil environmental impact is Level 2.

五、关注的主要环境问题及环境影响

V. Major Environmental Issues and Environmental Impact

1、关注的主要环境问题

1. Major environmental issues

根据项目的特点，本次评价主要关注的环境问题包括：

According to the characteristics of the project, the main environmental issues in the current evaluation include:

（1）拟建项目污染防治措施的经济技术可行性，关注拟建项目所采用的污染防治技术措施是否能实现废气长期稳定达标排放要求。

(1) For the economic and technical feasibility of pollution control measures of the proposed project, and attention shall be paid to whether the pollution control measures adopted by the proposed project can meet the long-term stable up-to-standard discharge of waste gas.

（2）关注大气环境影响的可接受性。重点关注大气污染物排放对区域环境空气质量的影响。

(2) Pay attention to the acceptability of atmospheric environmental impact. Close attention to shall be paid to the impact of atmospheric pollutant emissions on regional ambient air quality.

（3）项目固体废物产生量较大，关注主要固体废物全部综合利用的可行性。

(3) The Project produces a large amount of solid waste; so attention shall be to the feasibility of comprehensive utilization of all major solid wastes.

（4）关注项目废水处理措施和地下水的防渗相关措施，分析项目运营对区域地表水和地下水的影响。

(4) Attention shall be paid to the project wastewater treatment measures and groundwater anti-seepage measures, while analyzing the impact of project operation on regional surface water and groundwater.

2、拟建项目的主要环境影响

2. Main environmental impact of the proposed project

（1）废气

(1) Waste gas

拟建项目焚烧炉废气颗粒物、SO2、NOx排放浓度满足《区域性大气污染物综合排放标准》（DB37/2376-2019）表1重点控制区标准要求；VOCs排放浓度及排放速率满足《挥发性有机物排放标准第6部分：有机化工行业》（DB37/2801.6-2018）表1Ⅱ时段排放限值要求；甲醇、环氧丙烷、二噁英排放浓度满足《挥发性有机物排放标准第6部分：有机化工行业》（DB37/2801.6-2018）表2排放限值要求；CO排放满足《危险废物焚烧污染控制标准》（GB18484-2001）表3中标准要求；NH3

排放满足《火电厂烟气脱硝工程技术规范选择性非催化还原法》（HJ563-2010）及《恶臭污染物排放标准》（GB14554-93）表2排放限值。活性炭吸附装置VOCs排放浓度及排放速率满足《挥发性有机物排放标准第6部分：有机化工行业》（DB37/2801.6-2018）表1Ⅱ时段排放限值要求。污水处理站废气加盖收集后经锅炉焚烧处理，VOCs、NH3、H2S满足《有机化工企业污水处理厂（站）挥发性有机物及恶臭污染物排放标准》（DB37/3161-2018）表1要求后通过120/65㎜高排气筒排放。危废间废气引入锅炉焚烧，VOCs满足《挥发性有机物排放标准第6部分：有机化工行业》（DB37/2801.6-2018）表1Ⅱ时段排放限值要求后通过1根120m/65m高排气筒排放。

Emission concentrations of particulate matter, SO2 and NOx from incinerator waste gas in the proposed project meet the standard requirements for key control areas specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019). Emission concentration and rate of VOCs can meet the Period II emission limits specified in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018). Emission concentration methanol, HPPO and dioxin can meet the emission limits specified in Table 2 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018). CO emission meets the standard requirements specified in Table 3 of Pollution Control Standard for Hazardous Wastes Incineration (GB18484-2001). NH3 emission meets the emission limit requirements specified in Engineering Technical Specification of Flue Gas Selective Non-catalytic Reduction Denitration for Thermal Power Plant (HJ563-2010) and Table 2 of Emission Standards for Odor Pollutants (GB14554-93). Emission concentration and rate of VOCs from activated carbon adsorption device can meet the Period II emission limits specified in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018). Waste gas from the sewage treatment plant is collected by capping and then incinerated in the boiler. VOCs, NH3 and H2S are discharged through a 120m/65m high exhaust funnel after meeting the requirements specified in Table 1 of Emission Standard of Volatile Organic Compounds and Odor Pollutants for Wastewater Treatment Plant of Organic Chemical Industrial Enterprises (DB37/3161-2018). Waste gas from hazardous waste rooms is introduced into boilers for incineration, and VOCs is discharged through a 120m/65m high exhaust funnel after meeting the Period II emission limits specified in Table 1of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801. 6-2018).

项目无组织废气主要是装置区设备动静密封处废气的泄漏排放及产品装卸排放、罐区大小呼吸废气、污水处理站废气等。项目罐区存储物料不易挥发，采用内浮顶罐/固定顶罐+氮封减少无组织废气排放量；装置区通过加强设备管理、维护，提高操作水平，定期开展LDAR等措施控制无组织排放。拟建项目无组织废气控制措施能够满足《挥发性有机物无组织排放控制标准》（GB37822-2019）、《重点行业挥发性有机物综合治理方案》中要求。采取无组织废气控制措施后，厂界VOCs排放浓度满足《挥发性有机物排放标准第6部分：有机化工行业》（DB37/2801.6-2018）表3相关要求。氨、硫化氢、臭气浓度满足《恶臭污染物排放标准》（GB14554-93）表1新扩改建二级标准。

Fugitive waste gas of the Project mainly includes the leakage and discharge of waste gas from the dynamic and static seals of equipment in the plant area, the discharge of

product loading and unloading, the waste gas from large and small tank breathing in the tank farm, and the waste gas from sewage treatment plants. Materials stored in the tank farm of the Project are less volatile, and measure of internal floating roof tank/fixed roof tank + nitrogen seal is adopted to reduce emissions of the fugitive waste gas. The plant area controls fugitive emissions by strengthening equipment management and maintenance, improving operation level, and regularly carrying out LDAR and other measures. Fugitive waste gas control measures of the proposed project can meet the requirements specified in Control Standard for Unorganized Emission of Volatile Organic Compounds (GB37822-2019) and Plan for Comprehensive Treatment of Volatile Organic Compounds in Key Industries. After taking fugitive waste gas control measures, the emission concentration of VOCs at the plant boundary meets the relevant requirements specified in Table 3 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018). The concentrations of ammonia, hydrogen sulfide and stink meet the Grade III standards for newly, expanded and reconstructed projects specified in Table 1 of Emission Standards for Odor Pollutants (GB14554-93).

根据环境空气影响预测结果，项目建成后对区域环境空气质量影响较小。

According to the prediction results of ambient air impact, the project has little impact on regional ambient air quality upon completion.

（2）废水

(2) Wastewater

拟建项目工艺废水经新建污水处理站预处理后和地面冲洗水、余热锅炉排污水、脱盐水站浓水、循环冷却系统排污水、生活污水以及装置区初期雨水等满足金山污水处理场进水水质后，进入厂区内金山污水处理场进行深度处理，处理达标后由齐鲁石化排海管线排入小清河。金山污水处理场外排废水满足《石油化学工业污染物排放标准》(GB31571-2015)表2中直接排放标准、《流域水污染物综合排放标准第3部分：小清河流域》（DB37/3416.3-2018）重点保护区域限值要求，同时满足淄博市人民政府关于印发《淄博市打好小清河流域及沂河水污染防治攻坚战作战方案》的通知（淄政办字[2019]23号）要求（COD≤40mg/L，NH3-N≤2mg/L）。

After the process wastewater of the proposed project is pretreated by the newly-built sewage treatment plant, ground flushing water, waste heat boiler sewerage, concentrated water of demineralized water station, sewerage of circulating cooling system, domestic sewage and initial runoff in the plant area meet the influent water quality requirements of Jinshan Sewage Treatment Plant, they shall be sent into Jinshan Sewage Treatment Plant in the plant area for advanced treatment and then discharged into Xiaoqing River by seaward sewage discharge pipelines of Qilu Petrochemical after reaching the standard upon treatment. Wastewater discharged outside from Jinshan Sewage Treatment Plant can meet the direct discharge standards specified in Table 2 of Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015), the limit requirements for protection zones specified in Integrated Wastewater Discharge Standard for Basin- Part 3: Xiaoqing River Basin (DB37/3416.3-2018), and the requirements specified in the Notice of Zibo People's Government on Issuing the Zibo's Plan for Water Pollution Prevention and Control in Xiaoqing River Basin and Yi River (Z.Z.B.Zi [2019] No.23) (COD≤40mg/L, NH3-

N≤2mg/L).

（3）噪声

(3) Noise

拟建项目主要噪声源为泵类、风机等，采取隔声、消声、减震措施后，厂界贡献值可以满足《工业企业厂界环境噪声排放标准》（GB12348-2008）3类标准；叠加现状监测值后，各厂界噪声值昼、夜均能满足《工业企业厂界环境噪声排放标准》（GB12348-2008）3类标准要求。

Main noise sources of the proposed project are pumps, fans, etc. After sound insulation, noise elimination and shock absorption measures are taken, the contribution value of plant boundary complies with Category III standard of Emission Standards for Industrial Enterprises Noise at Boundary (GB12348-2008). After superimposing the current monitoring values, the noise value of each plant boundary at day and night complies with Category III standard of Emission Standards for Industrial Enterprises Noise at Boundary (GB12348-2008).

（4）固废

(4) Solid waste

拟建项目产生的危废主要是废催化剂、废活性氧化铝、废滤芯、废活性炭、废树脂、丙烯分离塔废液、甲醇回收塔废液、丙二醇精馏塔精馏废液、闪蒸塔废液、废机油、气浮污油等。其中废催化剂、废活性氧化铝、废滤芯、废活性炭、废树脂、废机油、气浮污油等委托处置；丙烯分离塔废液、甲醇回收塔废液、丙二醇精馏塔精馏废液、闪蒸塔废液由焚烧炉处理。拟建项目产生的一般固废主要是污水站生化系统污泥，焚烧处置；生活垃圾由环卫部门清运。拟建项目固废均妥善处置。

Hazardous wastes generated by the proposed project mainly include spent catalyst, waste activated alumina, waste filter element, spent activated carbon, waste resin, waste liquid from propylene separating column, waste liquid from methanol recovery tower, rectification waste liquid from propylene glycol rectification column, waste liquid from flash column, waste engine oil, air flotation sump oil, etc. Among them, spent catalyst, waste activated alumina, waste filter element, spent activated carbon, waste resin, waste engine oil and floatation tank sump oil are entrusted for disposal. Waste liquid from propylene separating column, waste liquid from methanol recovery tower, rectification waste liquid from propylene glycol rectification column, and waste liquid from flash column are treated by incinerators. General solid waste generated by the proposed project is mainly sludge from the biochemical system of sewage treatment plant, which will be incinerated for disposal. Municipal solid wastes are cleaned by the environmental sanitation department.

（5）环境风险

(5) Environmental risk

企业在严格落实本次评价提出的各项环境风险防控措施的情况下，发生风险事故概率较小，项目环境风险可防可控。

The probability of risk accidents is low and the environmental risks of the project are preventable and controllable, provided that the Company strictly implements various

environmental risk control measures proposed in this EIA.

（6）大气环境防护距离

(6) Atmospheric environmental protection zone

根据大气环境影响预测结果，本项目不需要设置大气环境防护距离。

According to the prediction results of atmospheric environmental impact, no atmospheric environment protection zone is necessary for the Project.

六、环境影响评价主要结论

VI. Main Conclusions of Environmental Impact Assessment

拟建项目符合国家产业政策要求；项目选址符合城市规划，符合齐鲁化学工业区规划和产业定位，项目选址基本合理；落实各项污染治理措施后，拟建项目满足各项污染物排放标准要求；环境风险可防可控；符合清洁生产要求；满足总量控制要求；公众支持项目建设。从环保角度分析，在充分落实报告提出的各项污染防治措施，项目建设对周围环境质量影响较小，项目建设可行。

The proposed project conforms to national industrial policies; the project site selection conforms to the urban planning, Qilu Chemical Industry Park planning and industrial positioning, and is basically reasonable. After the implementation of various pollution control measures, the proposed project conforms to all pollutant emission standards. Environmental risk is preventable and controllable; the proposed project conforms to cleaner production requirements and total load control requirements; and the public supports the construction of proposed project. From the perspective of environmental protection, in the full implementation of various pollution control measures proposed in the report, the project construction has little impact on the quality of surrounding environment and is feasible.

1. 总则

1. General

1.6 评价标准

1.6 Assessment standard

1.6.1 环境质量标准

1.6.1 Environmental quality standards

1、环境空气执行《环境空气质量标准》（GB3095-2012）二级标准要求和《环境影响评价技术导则 大气环境》（HJ2.2-2018）中附录 D；

1. Ambient air shall comply with Grade III standard in Ambient Air Quality Standards (GB3095-2012) and Appendix D of Technical Guidelines for Environmental Impact Assessment - Atmospheric Environment (HJ2.2-2018);

2、地表水小清河评价河段执行《地表水环境质量标准》（GB3838-2002）中Ⅴ类标准；

2. The surface water assessment section of Xiaoqing River shall comply with Category V standard in the Environmental Quality Standards for Surface Water (GB3838-2002);

3、地下水执行《地下水质量标准》（GB/T14848-2017）中Ⅲ类标准；

3. The groundwater shall comply with Category III standard in Standard for Groundwater Quality (GB/T14848-2017).

4、声环境执行《声环境质量标准》（GB3096-2008）中 3 类标准。

4. The acoustic environment shall comply with Category III standard in Environmental Quality Standard for Noise (GB3096-2008);

5、土壤执行《土壤环境质量标准-建设用地土壤污染风险管控标准》（GB36600-2018）筛选值第二类用地。

5. The soil shall comply with the Category II land use under the ecological soil screening level in the Soil Environmental Quality Risk Control Standard for Soil Contamination of Development Land (GB36600-2018).

1.6.2 排放标准

1.6.2 Discharge standard

1、废气

1. Waste gas

表 1-12 有组织废气排放源及评价标准限值

Table 1-12 Emission Source and Assessment Standard Limits of Intentional Waste Gas

污染源 Pollution source	污染物 Pollutant	最高允许排放浓度(mg/m³) Maximum allowable emission concentration (mg/m³)	排放速率限值（kg/h） Emission rate limit	标准限值来源 Standard limit source

焚烧炉排气筒 Incinerator exhaust funnel	颗粒物 PM	10	/	《山东省区域性大气污染物综合排放标准》（DB37/2376-2013）表 2 大气污染物排放浓度限值（第四时段）重点控制区 Key control areas under air pollutant emission concentration limit (Period IV) in Table 2 of the Regional and Integrated Emission Standard of Air Pollutants in Shandong Province (DB37/2376-2013).
	SO_2	50	/	
	NOx	100	/	
	CO	80	-	《危险废物焚烧污染控制标准》（GB18484-2001）表 3 Table 3 in Pollution Control Standard for Hazardous Wastes Incineration (GB18484-2001)
	NH_3	8	35	《恶臭污染物排放标准》（GB14554-1993）表 2 标准；《火电厂烟气脱硝工程技术规范 选择性非催化还原法》（HJ563-2010） Standards in Table 2 of the Emission Standards for Odor Pollutants (GB14554-1993); Engineering Technical Specification of Flue Gas Selective Non-catalytic Reduction Denitration for Thermal Power Plant (HJ563-2010)
	二噁英 Dioxin	0.1 ng-TEQ/m³	/	《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 2 Table 2 in Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018)
	甲醇 Methanol	50	/	
	环氧丙烷 Propylene oxide	1	/	
	VOCs	60	3.0	《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 1Ⅱ时段 Period II in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018)
活性炭吸附 Adsorption of activated carbon 装置排气筒 Plant exhaust funnel	VOCs	60	3.0	《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 1Ⅱ时段 Period II in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018)
现有锅炉排气筒 Existing boiler exhaust funnel	VOCs	100	5.0	《有机化工企业污水处理厂（站）挥发性有 机物及恶臭污染物排放标准》（DB37/3161-2018）表 1 Table 1 in Emission Standard of Volatile Organic Compounds and Odor Pollutants for Wastewater Treatment Plant of Organic Chemical Industrial Enterprises (DB37/3161-2018)
	氨 Ammonia	20	1.0	
	硫化氢 Hydrogen sulfide	3	0.1	

表 1-13 无组织废气排放标准

Table 1-13 Emission Standard of Fugitive Waste Gas

污染物 Pollutant	最高允许排放浓度（mg/m³） Maximum allowable emission concentration (mg/m³)	标准来源 Standard source
氨 Ammonia	1.5	《恶臭污染物排放标准》（GB14554-93）表 1 新扩改建二级标准 Grade II standard for newly, expanded and reconstructed projects in Table 1 of Emission Standards for Odor Pollutants (GB14554-93)
硫化氢 Hydrogen sulfide	0.06	
臭气浓度 Stink concentration	20（无量纲） 20 (non-dimensional)	
VOCs	2.0	《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 3 Table 3 in Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018)
苯 Benzene	0.1	
甲苯 Toluene	0.2	
二甲苯 Xylene	0.2	

2、废水

(2) Wastewater

拟建项目废水经污水处理设施预处理满足金山污水处理场进水指标后排入金山污水处理场。

Wastewater from the proposed project is discharged into Jinshan Sewage Treatment Plant after pretreated by sewage treatment facilities and meeting the influent index of Jinshan Sewage Treatment Plant.

表 1-14 拟建项目废水排放标准

Table 1-14 Discharge Standards of Wastewater of the Proposed Project

单位：mg/L，pH 除外

Unit: mg/L, except pH

项目 Item	pH	COD	SS	氨氮 Ammonia nitrogen	石油类 Petroleum category
金山污水处理场进水指标要求 Inflow index requirements for Jinshan Sewage Treatment Plant	6～9 6~9	1000	150	20	10

3、噪声

3. Noise

厂界噪声标准执行《工业企业厂界环境噪声排放标准》（GB12348-2008）3 类标准。

Boundary noise shall be subject to the Category III standards in the Emission Standard for Industrial Enterprises Noise at Boundary (GB12348-2008).

表 1-16 工业企业厂界环境噪声排放标准

Table 1-16 Emission Standard for Industrial Enterprises Noise at Boundary

单位：dB(A)

Unit: dB(A)

类别 Category	昼间 Daytime	夜间 Night
3 类 Class 3	65	55

4、固体废物

4. Solid waste

一般固体废物执行《一般工业固体废物贮存、处置场污染控制标准》（GB18599-2001）及其修改单，危险废物执行《危险废物贮存污染控制标准》（GB18597-2001）及其修改单。

General solid waste shall be subject to the Standard for Pollution Control on the Storage and Disposal Site for General Industrial Solid Wastes (GB18599-2001) and its amendments. Hazardous waste shall be subject to the Standard for Pollution Control on Hazardous Waste Storage (GB18597-2001) and its amendments.

2 现有及在建项目工程分析

2. Engineering Analysis on Existing Projects and Projects under Construction

淄博齐翔腾达化工股份有限公司（以下简称齐翔腾达）是淄博齐翔石油化工集团有限公司的控股公司，现有固定资产 20 余亿元，职工 900 人。

Zibo Qixiang Tengda Chemical Co., Ltd. (hereinafter referred to as "Qixiang Tengda Chemical"), the holding company with the fixed assets of over RMB 2 billion and 900 employees, is subordinate to Zibo Qixiang Petrochemical Group Co., Ltd.

目前齐翔腾达有两个厂区，一个在齐鲁化学工业区东部区域（以下简称老厂区），另一个在齐鲁化学工业区西南角区域（以下简称新厂区），新老厂区之间的距离约为 6 公里。老厂区和新厂区现有项目环保手续齐全。

Qixiang Tengda Chemical currently has two plant areas, one in the east of Qilu Chemical Industry Park (hereinafter referred to as the "old plant area") and the other in the southwest corner of Qilu Chemical Industry Park (hereinafter referred to as the "new plant area"), with a distance of about 6 kilometers between the both plant areas. Existing projects in both old and new plant areas have gone through all environmental protection procedures.

老厂区现有 MTBE 装置建设项目、丁烯分离项目、8 万吨/年甲乙酮项目、MTBE 技术改造和碳四综合利用项目、碳四综合利用项目，建有 2 台 35t/h 循环流化床锅炉。

In the old plant area, there are MTBE plant construction project, butene separation project, 80,000 t/a MEK project, MTBE technical renovation and C4 comprehensive utilization project, and C4 comprehensive utilization project, with two 35t/h circulating fluidized bedboilers equipped.

新厂区位于齐鲁化学工业区，南沣路北侧、冯北路西侧。新厂区现有项目包括年产 10 万吨丁二烯项目、15 万吨/年丁二烯装置改扩建项目、年产 7 万吨稀土顺丁橡胶项目、年产 15 万吨环保新材料（PBS）项目、45 万吨/年低碳烷烃制烯烃项目、污水处理工程项目、金山污水厂扩建项目、清洁燃气改造项目、催化剂制备及评价装置项目等；已建成但未投产的项目为清洁燃气改造项目、清洁燃气改造-危废焚烧炉项目，在建项目为 70 万吨/年丙烷脱氢项目、40 万吨/年叔丁醇及配套 20 万吨/年 MMA 项目、5 万吨/年异丁烯装置项目。

The new plant area is located in Qilu Chemical Industry Park, north to Nanfeng Road and west to Fengbei Road. Existing projects in the new plant area include the 100,000t/a Butadiene Project. 150,000t/a BD Plant Renovation and Expansion Project, 70,000t/a Rare Earth BR Project, 150,000t/a environmentally friendly new material (PBS) project, 450,000t/a Low-carbon Alkane to Olefin Project, sewage treatment project, Jinshan Sewage Plant Expansion Project, Clean Gas Transformation Project, Catalyst Preparation and Assessment Plant Project, and others. Projects that have been completed, but not put into operation include Clean Gas Transformation Project and Clean Gas Transformation-Hazardous Waste Incinerator Project. Projects under construction include 700,000t/a Propane Dehydrogenation Project, 400,000t/a TBA and Supporting 200,000t/a MMA Project and 50,000t/a Isobutene Plant Projects.

表 2-1 齐翔腾达公司各厂区生产装置环评及“三同时”验收情况

Table 2-1 EIA of Production Plants and "Three Simultaneities" Acceptance in Each Plant Area of Qixiang Tengda Chemical

所在厂区 Plant area		建设项目名称 Name of construction project	环评批复文号 EIA approval document No.	验收文号 Acceptance document No.	主体装置 Main plant	建设/运行情况 Construction/operation situations
齐翔腾达公司 Qixiang Tengda Chemical	老厂区 Old plant area	MTBE 装置建设项目 MTBE Plant Construction Project	2004.6.2 6/2/2004	2005.5.27 5/27,/2005	MTBE 装置 MTBE plant	正常运行 Normal operation
		丁烯分离项目 Butene separation project	2005.3.26 3/26/2005	2005.12.15 12/15/2005	丁烯分离装置 Butene separation plant	正常运行 Normal operation
		2 万吨/年甲乙酮项目 20,000t/a MEK Project	2000.8.1 8/1/2000	2002.6.5 6/5/2002	甲乙酮装置 MEK plant	正常运行 Normal operation
		MTBE 裂解制异丁烯装置 MTBE cracking catalyst for isobutene plant	2005.9.16 9/16/2005	2007.1.22 1/22/2007	MTBE 裂解制异丁烯装置 MTBE cracking catalyst for isobutene plant	正常运行 Normal operation
		1.2 万吨/年叔丁醇装置 12,000t/a TBA plant	2006.8.20 8/20/2006	2007.1.22 1/22/2007	1.2 万吨/年叔丁醇装置 12,000t/a TBA plant	正常运行 Normal operation
		8000 吨/小时循环水场项目 8,000t/h circulating water field project	2008.6.24 6/24/2008 淄环报告表[2008]122号 Z.H.B.G.B [2008] No. 122	2009.6.8 6/8/2009 淄环验[2009]18 Z.H.Y [2009] No. 18	8000 吨/小时循环水站 8,000t/h circulating water station	正常运行 Normal operation
		汽车装车站改造项目 Vehicle loading station reconstruction project	2008.1.23 1/23/2008 淄环报告表[2008]6号 Z.H.B.G.B [2008] No. 6	2008.8.13 8/13/2008	汽车装车站 Vehicle loading station	该项目已于2015 年底拆除 Demolished at the end of 2015
		罐区扩建项目 Tank farm expansion project	2010.2.10 2/10/2010 淄环报告表[2010]15	2011.8.17 8/17/2011 环验[2011]72 号	扩建罐区 Tank farm expansion	正常运行 Normal operation

			号 Z.H.B.G.B [2010] No. 15	H.Y. [2011] No. 72		
		MTBE 技术改造和碳四综合利用项目 MTBE technical renovation and C4 comprehensive utilization project	2009.9.14 9/14/2009 淄环审[2009]38 号 Z.H.S. [2009] No. 38	2010.5.13 5/13/2010 淄环验[2010]23 号 Z.H.Y. [2010] No. 23	MTBE 装置和碳四综合利用装置 MTBE technical renovation and C4 comprehensive utilization project	正常运行 Normal operation
		4 万吨/年甲乙酮技术改造项目 40,000t/a MEK MTBE technical renovation project	2011.4.15 4/15/2011 淄环审[2011]20 号 Z.H.S. [2011] No. 20	2012.5.21 5/21/2012 淄环验[2012]27 号 Z.H.Y. [2012] No. 27	4 万吨/年甲乙酮装置 40,000t/a MEK plant	改扩建后产能变为8 万吨/年 The capacity becomes 80,000t/a after the renovation and expansion.
		热力工程项目 Thermal engineering project	2007.2	2008.1.23 1/23/2008	锅炉 Boiler	正常运行 Normal operation
		化工罐区扩建项目 Chemical tank farm expansion project	2012.3.7 3/7/2012	2014.3.20 3/20/2014	扩建罐区 Tank farm expansion	正常运行 Normal operation
		碳四综合利用项目 C4 comprehensive utilization project	2014.12.8 12/8/2014	2018 年 2018 完成自主验收 Self-acceptance completed	碳四综合利用装置 C4 comprehensive utilization plant	正常运行 Normal operation
		8 万吨/年甲乙酮改扩建项目 80,000t/a MEK renovation and expansion project	2014.12.4 12/4/2014 淄环审[2014]106 号 Z.H.S. [2014] No. 106	2018年 2018 完成自主验收 Self-acceptance completed	8 万吨/年甲乙酮装置 80,000t/a MEK plant	由原 4 万吨/年装置改扩建而成 Renovated and expanded from the original 40,000t/a plant
		2×35t/h 循环流化床锅炉超低排放改造工程项目 2×35t/h circulating fluidized bedboiler ultra-low emission	临环审字[2017]018 号 L.H.S.Zi [2017] No. 018	2019.1.22 1/22/2019 完成自主验收 Self-acceptance	超低排放改造设施 Ultra-low emission reconstruction facility	由于公司内部管网调控，暂停运行 The operation has been suspended due to the

		reconstruction project		completed		regulation of the Company's internal pipe network.
	新厂区 New plant area	年产10 万吨丁二烯项目 100,000t/a butadiene project	淄环审[2011]49 号 Z.H.S. [2011] No. 49	淄环验[2013]49 号 Z.H.Y. [2013] No. 49	两条5 万吨/年丁二烯生产线 Two 50,000t/a butadiene production lines	正常运行 Normal operation
		15 万吨/年丁二烯装置改扩建项目 150,000t/a BD plant reconstruction and expansion （包含4×240t/h 的锅炉） (including 4×240t/h boiler)	淄环审[2013]47 号 Z.H.S. [2013] No. 47	淄环验[2016]11 号 Z.H.Y. [2016] No. 11	在原有10 万吨/年装置基础上扩建一条5 万吨/年生产线，建设4 台循环流化床锅炉，一台备用 Another 50,000t/a production line is expanded based on original 100,000t/a plant. There are four circulating fluidized bedboilers, and one for standby.	正常运行 Normal operation
		年产 7 万吨稀土顺丁橡胶项目 70,000t/a rare earth BR project	淄环审[2013]59 号 Z.H.S. [2013] No. 59	淄环验[2015]113 号 Z.H.Y. [2015] No. 113	年产7 万吨稀土顺丁橡胶生产线 70,000t/a rare earth BR production line	正常运行 Normal operation
		橡胶装置尾气环保治理项目 Rubber plant tail gas environmental protection and treatment project	临环审字[2017]149 号 L.H.S.Zi [2017] No. 149	--	新上吸附-再生-溶剂回收处理工艺 New adsorption-regeneration-solvent recovery process	已建成，未运行 Completed, but not put into operation
		污水处理工程项目 Sewage treatment project	淄博市环保局 Zibo Municipal Bureau of Environmental Protection 环报告表[2012]119 号 H.B.G.B [2012] No. 119	淄环验[2014]35 号 Z.H.Y. [2014] No. 35	设计规模520m³/h，以“预处理+生物氧化+催化氧化”为核心处理工艺 Design scale is 520m^3/h, with "pretreatment + biological oxidation + catalytic oxidation" as the core treatment process	正常运行 Normal operation
		年产15 万吨新材料（PBS）项目 150000t/a New Material	淄环审[2012]111 号 Z.H.S. [2012] No. 111	淄环验[2015]114 号 Z.H.Y. [2015]	一期10 万吨/年顺酐装置 Phase-I 100,000t/a maleic anhydride plant	正常运行 Normal operation

		(PBS) Project		No. 114		
				通过自主验收 Self-acceptance passed	二期2 套5 万吨/年顺酐装置，其余装置不再建设 Two sets of 50,000t/a maleic anhydride plant in phase-II project have been built, the remaining plants are no longer constructed	
		45 万吨/年低碳烷烃脱氢制烯烃及综合利用项目 450,000t/a low-carbon alkane dehydrogenation to olefins and comprehensive utilization project	淄环审[2013]54 号 Z.H.S. [2013] No. 54	通过自主验收 Self-acceptance passed	年产10 万吨丙烯，5 万吨叔丁醇，35 万吨MTBE，20万吨异辛烷 100,000t/a propylene, 50,000t/a TBA, 350,000t/a MTBE, 200,000t/a isooctane	正常运行 Normal operation
		45 万吨/年低碳烷烃脱氢制烯烃及综合利用项目补充报告 Supplementary Report on 450,000t/a Low-carbon Alkane Dehydrogenation to Olefins and Comprehensive Utilization Project	淄环审[2014]90 号 Z.H.S. [2014] No. 90		异辛烷生产由氢氟酸法变更为硫酸法，产能由20 万吨/年调整为24 万吨/年，配套增加2.3 万吨硫酸回收装置；罐区取消中间碳四罐区，另设三个罐区 The production method of isooctane is changed from the hydrofluoric acid method to the sulfuric acid method; the capacity is adjusted from 200,000t/a to 240,000t/a, and an additional 23,000t/a sulfuric acid recovery plant is added. In tank farm, the C4 tank farm in the center is canceled, and another three tank farms are set up.	
		锅炉超低排放治理技改项目 Boiler ultra-low emission treatment technical transformation project	临环审字[2016]145 号 L.H.S.Zi [2016] No. 145	通过自主验收 Self-acceptance passed	对脱硫、脱硝和除尘设施升级改造 Upgrade and reconstruct desulfurization, denitration and dust removal facilities	正常运行 Normal operation
		热能综合利用技术改造项目 Thermal energy comprehensive utilization technical transformation project	淄环审[2016]66 号 Z.H.S. [2016] No. 66	通过自主验收 Self-acceptance passed	依托原有循环流化床锅炉，新建3*30MW 背压机组 Another 3*30MW back pressure unit will be built based on the original circulating fluidized bedboiler.	现有2*30MW 背压机组，正常运行 There are 2*30MW back pressure units currently, both are under normal operation

		金山污水厂扩建项目 Jinshan sewage treatment plant expansion project	淄环报告表[2014]62号 Z.H.B.G.B [2014] No. 62	通过自主验收 Self-acceptance passed	针对年产15 万吨新材料项废水建设高浓度污水预处理设施；扩建现有污水处理装置，扩建部分设计能力为720m³/h，以“水解酸化+A/O”为核心处理工艺；项目投产后，全厂总运行规模为1240m³/h High-concentration sewage pretreatment facilities are constructed for wastewater of 150,000t/a New Material Project; the existing sewage treatment plant is expanded with a design capacity expanded of 720m³/h, with "hydrolysis acidification + A/O" as the core treatment process. After the project is put into operation, the total operation scale of the whole plant is 1240m³/h	正常运行 Normal operation
		液化轻烃装卸车设施扩建项目 Liquefied light hydrocarbon loading & unloading facility expansion project	临环审字[2017]012号 L.H.S.Zi [2017] No. 012	2019.1.22 已完成 Completed on January 22, 2019 自主验收 Self-accepted	建设装车设施（装车鹤管位33 个）、化验控制间、磅房、地中衡等辅助、配套油气回收等环保设施工程 Auxiliary & supporting oil and gas recovery and other environmental protection facility engineering are constructed, such as loading facilities (33 positions of loading crane pipes), test and control room, pump room and platform scale	正常运行 Normal operation
		清洁燃气改造项目 Clean gas reconstruction project	淄博市环保局 Zibo Municipal Bureau of Environmental Protection 淄环审[2015]27 号 Z.H.S. [2015] No. 27	--	建设煤制气生产线，年产煤气$8.0\times10^8Nm^3$ The coal gas production line is constructed with an annual gas output of $8.0\times10^8Nm^3$	已建成，未运行 Completed, but not put into operation
		清洁燃气改造项目—危废焚烧炉 Clean gas reconstruction project - hazardous waste incinerator	临环审字[2017]029号 L.H.S.Zi [2017] No. 029	--	新增危废焚烧炉一台，配套余热锅炉，用于就近集中处理厂区顺酐装置产生的废物 A new hazardous waste incinerator is added, provided with a waste heat boiler for the centralized treatment of waste generated by the maleic anhydride plant in the plant area.	已建成，未运行 Completed, but not put into operation

		400m³/h 废水回用技术改造项目 400m³/h Wastewater Reuse Technical Renovation Project	临环审字[2017]082号 L.H.S.Zi [2017] No. 082	--	建设一套废水深度处理回用系统，以污水处理厂出水、顺酐及丁二烯循环排污水作为进水，处理后出水用于循环水补充水及锅炉化学水原水，项目处理污水能力为400m³/h A set of advanced treatment and reuse system for wastewater is constructed, with effluent from the sewage treatment plant, and maleic anhydride and butadiene circulating sewage as influent. After treatment, the effluent is used as the make-up water of circulating water and the raw water of boiler chemical water. The project sewage treatment capacity is 400m³/h	已建成投运，因调试时间较长未验收；拟拆除改建800m³/h 回用项目 It has been completed and put into operation, but not accepted due to long commissioning time, and is proposed to be demolished and reconstructed into 800m³/h reuse project
		催化剂制备及评价装置项目 Catalyst preparation and evaluation equipment project	淄环审[2018]44 号 Z.H.S. [2018] No. 44	2019 年7 月20 日已自主完成验收 The self-acceptance has been completed on July 20, 2019.	建设硫化车间、造粒间、仓库等，生产氧化态催化剂、铜系催化剂、硫化催化剂各1000t/a The vulcanization workshop, granulation room, warehouse, etc. are constructed, with a capacity of 1,000t/a for oxidation catalyst, copper catalyst, and sulfurization catalyst each.	正常运行 Normal operation
		45 万吨/年丙烷脱氢项目 450,000t/a propane dehydrogenation project	淄环审[2019]14 号 Z.H.S. [2019] No. 14	--	45 万吨/年丙烷脱氢装置：主要包括原料预处理单元、Oleflex 反应压缩单元、连续催化剂再生单元（CCR）、产品精制单元、PSA 单元等 450,000t/a PDH plant: mainly includes raw material pretreatment unit, Oleflex reaction compression unit, continuous catalyst regeneration unit (CCR), product purification unit, PSA unit, etc.	重新环评，并入70万吨丙烷脱氢项目 Environmental impact assessment repeated; incorporated into 700,000t/a PDH project
		40 万吨/年叔丁醇及配套20 万吨/年MMA 项目 400,000t/a TBA and supporting 200,000t/a MMA project	淄环审[2019]19 号 Z.H.S. [2019] No. 19	--	建设20 万t/a 叔丁醇生产单元、20 万t/a 叔丁醇生产单元、20 万t/aMMA 生产单元 Construct 200,000t/a TBA production unit, 200,000t/a TBA production unit and 200,000t/a MMA production unit	在建项目 Projects under construction
		5 万吨/年异丁烯装置项目 50,000t/a isobutene plant	淄环审[2019]28 号	--	包括催化精馏单元、产气压缩单元、异丁烯	在建项目 Projects under

		project	Z.H.S. [2019] No. 28		脱重单元以及异丁烯脱轻单元等部分 Including catalytic distillation unit, gas production and compression unit, isobutene rectification unit and isobutylene refining tower unit, etc.	construction
		70 万吨/年丙烷脱氢项目 700,000t/a propane dehydrogenation project	淄环审[2019]46 号 Z.H.S. [2019] No. 46	--	70 万吨/年丙烷脱氢装置：主要包括原料预处理单元、Oleflex 反应压缩单元、连续催化剂再生单元（CCR）、产品精制单元、PSA 单元等 700,000t/a PDH plant: mainly includes raw material pretreatment unit, Oleflex reaction compression unit, continuous catalyst regeneration unit (CCR), product purification unit, PSA unit, etc.	在建项目 Projects under construction
		3#脱硫塔、湿式电除尘、湿烟气减白工程 3# desulphurization tower, wet electric precipitation and wet flue gas bleaching project	临环审字[2019]133 号 L.H.S.Zi [2019] No. 133	--	3#脱硫塔、湿式电除尘、湿烟气减白，为4# 锅炉配套并单独设置90m 排气筒 3# desulphurization tower, wet electric precipitation and wet flue gas bleaching, a 90m exhaust funnel is provided and separately set for 4# boiler	在建项目，拟于2020 年 9 月建成 Project under construction, and to be completed in September 2020
		化工装置配套罐区项目 Chemical plant supporting tank farm project	临环审字[2019]165 号 L.H.S.Zi [2019] No. 165	--	建设球罐30 个，液体罐24 个，装卸车鹤位68 个，其中液体卸车、液化烃装卸车共48 个，液体装车20个 There are 30 spherical tanks, 24 liquid tanks and 68 loader cranes, including 48 liquid loaders and liquefied hydrocarbon loaders and 20 liquid loaders.	在建项目 Projects under construction

2.3 老厂区现有项目情况

2.3 Existing projects in the old plant area

2.3.1 现有项目工程组成

2.3.1 Composition of existing projects

齐翔腾达老厂区现有项目工程组成详见表 2-2。

See Table 2-2 for the existing project composition of Qixiang Tengda Chemical in the old plant area.

表 2-2 老厂区现有工程建设内容组成一览表

Table 2-2 List of Construction Contents of Existing Projects in the Old Plant Area

类别 Category	项目 Item	建设内容及规模 Construction content and scale
主体工程 Main work	甲乙酮装置 MEK plant	生产装置 2 套，20000t/a 一套、80000t/a 一套 2 sets of production plants, respectively 20,000t/a and 80,000t/a
	MTBE 装置 MTBE plant	生产装置两套，10000t/a 一套，20000 t/a 一套 2 sets of production plants, respectively 10,000t/a and 20,000 t/a
	MTBE 裂解制异丁烯装置 MTBE cracking catalyst for isobutene plant	生产装置一套，20000t/a One set of 20,000t/a production plant
	丁烯分离装置 Butene separation plant	生产装置一套，60000t/a One set of 60,000t/a production plant
	叔丁醇装置 TBA plant	生产装置一套，12000t/a One set of 12,000t/a production plant
	碳四综合利用装置 C4 comprehensive utilization plant	MTBE45000t/a，丁烯 60000t/a，丁烷 61200t/a 45,000T/a MTBE, 60,000t/a butene, and 61,200t/a butane
公辅 工程 Public and	给水工程 Water supply works	由齐鲁石化公司提供,用水量 418293.6t/a Provided by Sinopec Qilu Petrochemical Company, with a water consumption of 418,293.6t/a

auxiliary works	排水工程 Water drainage works	废水 485076.9m³/a，经隔油池处理后排入自有污水处理厂 Waste water is 485,076.9m³/a treated by oil separator and discharged into self-owned sewage treatment plant after treated in grease trap
	循环水系统 Circulating water system	企业自建循环水厂，8000m³/h The enterprise builds its own circulating water plant, 8000m³/h
	蒸汽 Steam	由老厂 35t/h 循环流化床锅炉和新厂 240t/h×4 循环流化床锅炉共同供汽，用汽量 134.329t/h The steam is supplied jointly by the 35t/h circulating fluidized bedboiler in the old plant area and 240t/h×4 circulating fluidized bedboilers in the new plant area, with a steam consumption of 134.329t/h.
	冷冻系统 Refrigeration system	自建冷冻站，功率 400Kcal/h Self-built refrigeration station, with a power of 400Kcal/h
	储运厂 Storage and transportation factory	液化烃储罐、液体储罐 Liquefied hydrocarbon storage tank, liquid storage tank;
	供电工程 Power supply works	总变电所 40000kVA，来自于橡胶厂 110 kV 变电站。 The main substation is 40,000kVA supplied from the 110 kV substation of the rubber plant.
环保工程 Environment protection works	废气处理工程 Waste gas treatment works	有机废气经液化气回收装置压缩回收，回收率 97%，剩余废气进入循环流化床锅炉焚烧处理，事故状态下废气进入齐 鲁石化橡胶厂火炬焚烧。 Organic waste gas is compressed and recovered by the liquefied gas recovery plant, with a recovery rate of 97%. The remaining waste gas enters the circulating fluidized bedboiler for incineration treatment. Under the accident state, the waste gas enters the rubber factory of Sinopec Qilu Petrochemical Company for incineration. 锅炉烟气采取“炉内添加石灰石脱硫+炉外石灰石石膏法”，脱硫效率约 99.1%；采用“布袋+脱硫除尘+管束式深度除 尘”方式除尘，除尘效率为 99.98%；采用“循环流化床低温燃烧+SNCR”方式脱硝，脱硝效率为 70%；设置一座 60m高烟囱，已安装烟气在线监测装置一套 The boiler flue gas is treated by "limestone addition inside boiler for desulfurization + limestone-gypsum outside the builder" with a desulfurization efficiency of about 99.1%. Dust is removed by "bag dust collector + desulfurization-based dust removal + bundle type deep dust removal", the dust removal efficiency is 99.98%. Denitration is conducted by the means of "low-temperature combustion on circulating fluidized bed + +SNCR", with a denitration efficiency of 70%. A 60m-high chimney is set, and a set of on-line monitoring device for flue gas has been installed.
	污水处理工程 Wastewater treatment works	厂区设置雨污分流管网，初期雨水和污水经收集后通过架空管道进入新厂区的污水站进行处理 The plant area is equipped with the rainwater-sewage diversion pipe network. The initial rainwater and sewage, after collected, pass through the overhead pipeline to the sewage station of the new plant area for treatment.
	噪声治理工程 Noise control works	采取隔声、基础减振等措施 Measures such as sound insulation and foundation vibration reduction shall be taken

	固废处理工程 Solid waste treatment works	危险废物暂存间面积为 150m²，一般固废主要是灰渣库、煤灰间和脱硫石膏间。 The area of hazardous waste temporary storeroom is 150m², and the general solid waste is mainly from the ash slag warehouse, coal ash room and desulfurization gypsum room.
	环境风险防范措施 Environmental risk prevention measures	厂区设置了三级防控体系，依托齐鲁石化厂区的事故水池，容积为 15000m³，满足本项目事故废水存放需求。 The plant area has set up a three-level prevention and control system, relying on the emergency water tank in the plant area of Sinopec Qilu Petrochemical Company, with a volume of 15,000m³, which meets the accident wastewater storage requirements of the Project.

2.3.2 现有工程污染物排放情况

2.3.2 Pollutant discharge from existing projects

1、废气

1. Waste gas

（1）有组织废气排放情况

(1) Intentional waste gas emissions

腾达公司老厂区现有 7 套化工生产装置，产生的有机废气的主要成分是非甲烷烃类气体，全部进入回收装置回收，得到分离出液化气和重组分，剩余不能回收的不凝气经循环流化床锅炉充分燃烧后排放。老厂区锅炉自 2019 年 5 月起停运，老厂区不凝气已引至新厂区现有锅炉焚烧处理。拟建热力中心改扩建项目建成后，老厂区锅炉作为备用。

There are 7 sets of chemical production plants in the old plant area of Qixiang Tengda Chemical. The main component of organic waste gas produced is non-methane hydrocarbon gas, all of which are recycled into the recovery plant to obtain the separated liquefied gas and heavy components. The remaining non-recoverable non-condensable gas is discharged after fully burned by the circulating fluidized bedboiler. Boilers in the old plant area have been shut down since May 2019, and non-condensable gas thee has been introduced to the existing boilers in the new plant area for incineration. After the renovation and expansion project of proposed thermal power center is completed, boilers in the old plant area will be used as a standby.

老厂区热力工程为 2×35t/h 锅炉，锅炉烟气采用“低氮燃烧+SNCR 脱硝+布袋除尘器+石灰石-石膏法脱硫+管束式除尘除雾”处理后，经 52 米烟囱 P1 排放。

Thermal engineering project in the old plant area is a 2×35t/h boilers, whose flue gas is treated by "low-nitrogen combustion + SNCR denitration + bag-type dust collector + limestone-gypsum desulphurization + bundle type dust removal and demisting" and then discharged through 52m chimney P1.

由实测数据及2018 年5 月～2019 年4 月在线数据可见，老厂区锅炉排气筒P1 排放的SO_2、NOx、烟尘、汞及其化合物浓度以及林格曼黑度均满足《锅炉大气污染物排放标准》(DB37/2374-2018)表2 重点控制区的标准要求（$SO_2$50mg/m³、NOx100mg/m³、烟尘 10mg/m³、汞及其化合物0.05 mg/m³，林格曼黑度1 级）。

From measured data and online data from May 2018 to April 2019, the concentrations of SO2, NOx, smoke dust, mercury and its compounds and emitted by boiler exhaust funnel P1 in the old plant area and their Ringelman emittance all comply with the standard requirements for key control areas in Table 2 of Emission Standard of Air Pollutants for Boilers (DB37/2374-2018) (50mg/m³ for SO_2, 100mg/m³ for NOx, 10mg/m³ for smoke dust, 0.05mg/m³ for mercury and its compounds, Grade-I Ringelmann Ringelman emittance).

老厂区甲乙酮项目设置了一台900 万大卡的导热油炉，燃料为天然气，2020 年4 月2 日，山东新石器检测有限公司对甲乙酮项目导热油炉废气排气筒P2 进行了监测

A 9 million kcal thermal oil furnace was set up for the MEK project in the old plant area and fueled by natural gas. On April 2, 2020, Shandong Neolithic Testing Co., Ltd. monitored the exhaust funnel P2 for the waste gas of thermal oil furnace in the MEK project.

甲乙酮装置区导热油炉各污染物排放浓度满足《区域性大气污染物综合排放标准》（DB37/2376-2019）表1 重点控制区标准（$SO_2$50mg/m³、NOx100 mg/m³、颗粒物10mg/m³）。

Pollutant emission concentration from thermal oil furnace in the MEK plant area complies with the standards for key control areas in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019) (50mg/m³ for SO_2, 100mg/m³ for NOx, 10mg/m³ for PM).

（2）无组织废气

(2) Fugitive waste gas

老厂区锅炉厂界无组织废气监测结果可知，厂界颗粒物排放浓度均低于《大气污染物综合排放标准》(GB16297-1996)中表2 无组织监控值要求（1.0mg/m³）。

Monitoring results of boundary fugitive waste gas from boilers in the old plant area show that the PM emission concentration at plant boundary is lower than the fugitive waste gas monitoring value (1.0mg/m³) specified in Table 2 of Integrated Emission Standards of Air Pollutants (GB16297-1996).

老厂区生产装置区厂界无组织废气监测结果可知，非甲烷总烃排放浓度均满足《石油化学工业污染物排放标准》(GB31571-2015)中表7 和《挥发性有机物排放标准 第6 部分：有机化工》（DB37/ 2801.6－2018）表3 要求（2.0mg/m³）；颗粒物满足《石油化学工业污染物排放标准》(GB31571-2015)中表 7 要求（1.0mg/m³）；臭气浓度满足《恶臭污染物排放标准》（GB14554-93）表1 二级新改扩建标准中最高允许排放浓度的要求（20（无量纲））。

According to monitoring results of fugitive waste gas at plant boundary of the plant area in the old plant area, the NMHC emission concentration meets the requirements specified in Table 7 of the *Emission Standard of Pollutants for Petroleum Chemistry Industry* (GB31571-2015) and Table 3 of the *Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry* (DB37/ 2801.6-2018) (2.0mg/m^3). The particulate matter meets the requirements specified in Table 7 (1.0mg/m^3) of the *Emission Standard of Pollutants for Petroleum Chemistry Industry* (GB31571-2015). The odor concentration meets the maximum allowable emission concentration for

level-2 new reconstruction and expansion standard specified in Table 1 of the *Emission Standards for Odor Pollutants* (GB14554-93) (20 (dimensionless)).

2、废水

(2) Wastewater

现有装置废水的排放总量为 485076.9 m³/a。主要污染物为 COD、NH3-N、乙腈等，废水经管线引入新厂区污水处理厂（一期）处理，处理达标后经齐鲁排海管线汇入小清河。

The total amount of wastewater discharged from existing plants is 485076.9m³/a. The main pollutants are COD, NH_3-N, acetonitrile, etc. The wastewater is piped into the sewage treatment plant (Phase I) in the new plant area, and discharged into Xiaoqing River through seaward sewage discharge pipelines of Qilu Petrochemical after treatment and reaching standard.

污水处理厂具体污水处理工艺见新厂区现有工程废水处理设施小节。

The specific sewage treatment process in the sewage treatment plant can be found in the section regarding waste water treatment facility of existing engineering in the new plant area.

3、固废

3. Solid waste

根据《淄博齐翔腾达化工股份有限公司 5 万吨/年异丁烯装置项目环境影响报告书》，老厂区现有项目一般固废产生量为 16350t/a，危险废物年平均产生量为 76.52t/a，其中老厂区 2018 每年全年危险废物转移到有资质的危废处置单位的量为 38t/a；经现场勘查发现危废暂存间面积约为 100m²，危废间内危废混放，需要加强管理，分区分类存放危险废物。

According to the Environmental Impact Report of 50,000t/a Isobutene Plant Project of Zibo Qixiang Tengda Chemical Co., Ltd., the general solid waste production of existing projects in the old plant area is 16,350t/a, and the average annual hazardous waste production is 76.52t/a; of which the amount of hazardous waste transferred to qualified hazardous waste disposal units in the old plant area in 2018 is 38t/a. After on-site investigation, the area of hazardous waste temporary storeroom was about 100m², and the hazardous wastes in the storeroom were mixed, so it is necessary to strengthen management and store hazardous wastes in different areas by categories.

4、噪声

4. Noise

厂界噪声监测结果可见，老厂区装置区各厂界昼间及夜间噪声均满足《工业企业厂界环境噪声排放标准》（GB12348-2008）3 类标准。

Monitoring results of boundary noise show that the daytime and nighttime noise at plant boundary in the installation area of old plant area complies with Category III standard of Emission Standards for Industrial Enterprises Noise at Boundary (GB12348-2008).

2.4 新厂区现有和在建项目情况

2.4 Existing projects and projects under construction in new plant area

2.4.1 新厂区现有项目情况

2.4.1 Existing projects in the new plant area

2.4.1.1 现有项目工程内容

2.4.1.1 Contents of existing project

新厂区现有项目建设情况具体见表 2-15。

The construction of existing projects in the new plant area is shown in Table 2-15.

表 2-15 新厂区现有工程建设内容组成一览表

Table 2-15 List of Construction Contents of Existing Projects in the New Plant Area

类别 Category	序号 No.	工程内容 Project content	建设内容 Construction contents
主体工程 Main work	1	年产10万吨丁二烯项目 100,000t/a BD project	设置4条2.5万吨/年丁二烯生产线 Set up 4 25,000t/a BD production lines
	2	15万吨/年丁二烯装置改扩建项目 150,000t/a BD plant reconstruction and expansion project	扩建2条2.5万吨/年生产线，建设4台循环流化床锅炉 Expand two 25,000t/a production lines and construct 4 circulating fluidized bedboilers
	3	年产7万吨稀土顺丁橡胶项目 70,000t/a rare earth BR project	建设2条3.5万吨/年稀土顺丁橡胶生产线 Construct 2 35,000t/s rare earth BR production lines
	4	年产15万吨新材料（PBS）项目 150000t/a New Material (PBS) Project	一期10万吨/年顺酐装置，二期2套5万吨/年顺酐装置，其余装置不再建设 Phase-I 100,000t/a maleic anhydride plant, and 2 sets of 50,000t/a maleic anhydride plant in phase II has been built, and the remaining plants are no longer constructed
	5	45万吨/年低碳烷烃脱氢制烯烃及综合利用项目 450,000t/a low-carbon alkane dehydrogenation to olefins and comprehensive utilization project	建设10万吨/年丙烯装置，5万吨/年叔丁醇装置，35万吨/年MTBE装置，24万吨/年异辛烷装置 100,000t/a propylene plant, 50,000t/a TBA plant, 350,000t/a MTBE plant and 240,000t/a isooctane plant （硫酸法）以及2.3万吨/年硫酸回收装置 (sulfuric acid process), and 23,000t/a sulfuric acid recovery plant are constructed
	6	锅炉超低排放治理技改项目 Boiler ultra-low emission treatment technical transformation project	对脱硫、脱硝和除尘设施进行升级改造 Upgrade and reconstruct desulfurization, denitration and dust removal facilities
	7	热能综合利用技术改造项目 Thermal energy comprehensive utilization technical transformation project	新建3*30MW背压机组，后期拆除一台，目前保留2*30MW背压机组 3*30MW back-pressure units are newly built, and one will be dismantled later. Currently, 2*30MW back-pressure units are reserved
	8	污水处理工程项目 Sewage treatment project	设计污水处理规模520m³/h，采用“预处理+生物氧化+催化氧化”处理工艺 Design scale of sewage treatment is 520m³/h, with "pretreatment + biological oxidation + catalytic oxidation" as the treatment process
	9	金山污水厂扩建项目 Jinshan sewage treatment plant expansion project	设计污水处理规模720m³/h，采用“水解酸化+A/O”处理工艺 The designed sewage treatment scale is 720m³/h, with the treatment process of "hydrolysis acidification+A/O" adopted.

	10	催化剂制备及评价装置项目 Catalyst preparation and evaluation equipment project	以氧化铝、氧化镁、氧化钛三元催化剂载体为主要原料，年产氧化态催化剂2000.66t/a（自用1000t/a）、铜系催化剂1001.46t/a、硫化催化剂1009.92t/a、硫酸钠（副产）1754.674t/a Alumina, magnesium oxide and titanium oxide three-way catalyst are used as main raw materials for 2000.66t/a oxidized catalyst (1000t/a for self-use), 1001.46t/a copper catalyst, 1009.92t/a Sulfurization catalyst, and 1754.674t/a sodium sulfate (by-product)
辅助工程 Ancillary works	1	办公场所 Office space	主要是在综合楼和控制室办公 Mainly in the complex building and control room
	2	职工食堂 Staff canteen	厂区设置1座员工食堂，位于厂区东南位置 A staff canteen is set up in the plant area, located in the southeast of the plant area.
公用工程 Utilities	1	给水系统 Water supply system	项目用水由市政自来水公司提供 Project water is provided by the municipal tap water company
	2	排水系统 Drainage system	雨污分流，生产废水和生活污水经厂内污水处理设施处理后排入齐鲁石化排海管线；初期雨水经收集至初期雨水池或厂区事故水池 Rainwater-sewage diversion, production waste water and domestic sewage are discharged through seaward sewage discharge pipelines of Qilu Petrochemical after treated by the sewage treatment facility in the plant. The initial rainwater is collected into the initial rainwater pool or the accident pool in the plant area.
	3	供电系统 Power supply system	厂区用电由厂区发电机组和园区电网提供，厂区设配电室 The electricity used in the plant area is provided by the generator set in the plant area and the power grid of the park; a power distribution room is set in the plant area
	4	供气系统 Air supply system	本项目使用的天然气全部外购 All natural gas used in the Project is purchased
	5	供热系统 Heat supply system	现有项目蒸汽主要来自于4台循环流化床锅炉、年产15万吨新材料（PBS）项目和45万吨/年低碳烷烃脱氢制烯烃及综合利用项目供给的蒸汽 The steam for existing projects mainly comes from four circulating fluidized bedboilers, 150,000t/a new material (PBS) project, and 450,000t/a low-carbon alkane dehydrogenation to olefins and comprehensive utilization project.
	6	空压系统 Air compressor system	厂内设置9台空气压缩机，其中锅炉装置设置2台，北区设置3台，南区设置4台，每台提供的风量为1700Nm³/h 9 air compressors have been installed in the plant area, including 2 for boiler installations, 3 in the north plant area and 4 in the south plant area, each providing an air volume of 1,700Nm^3/h.
	7	纯水制备系统 Pure water preparation system	新厂区设置4×130m³/h+2×250m³/h纯水制备系统，采用混床+两级反渗透工艺，设计产水率为80%

				4×130m³/h+2×250m³/h pure water preparation systems are set up in the new plant area, and a mixed bed + two-stage reverse osmosis process is adopted, with a designed water production rate of 80%
	8	循环冷却系统 Circulating cooling system		年产15万吨新材料（PBS）项目与45万吨/年低碳烷烃脱氢制烯烃及综合利用项目共用23015m³/h循环水冷却系统1套，年产10万吨丁二烯项目与年产7万吨稀土顺丁橡胶项目共用9000m³/h循环水冷却系统1套，15万吨/年丁二烯装置改扩建项目配备12000m³/h循环水冷却系统1套 150,000t/a new material (PBS) project and 450,000t/a low-carbon alkane dehydrogenation to olefins and comprehensive utilization project share one set of 23,015m³/h circulating water cooling system; 100,000t/a BD project and 70,000t/a rare earth BR project share one set of 9,000m³/h circulating water cooling system; and 150,000t/a BD plant reconstruction and expansion project is provided with one set of 12,000m³/h circulating water cooling system.
储运工程 Storage & transportation works	1	球罐 Spherical tank		厂区设置44×2000m³的球罐 The plant area is equipped with 44×2000m³ spherical tanks
	2	液罐 Liquid tank		厂区设置8×5000m³、8×1000m³、2×3000m³、2×3000m³的液罐 The plant area is equipped with 8×5000m³, 8×1000m³, 2×3000m³ and 2×3000m³ fluid tanks
	3	气柜 Gas cabinet		厂区设置1座20000m³的气柜 The plant area is equipped with one 20000m³ gas holder
环保工程 Environment protection works	1	废气 Waste gas	年产10万吨丁二烯项目 100,000t/a BD project	工艺废气经收集后作为锅炉燃料，燃烧后经锅炉烟囱排放；锅炉废气低氮燃烧+SNCR+布袋除尘器+石灰石-石膏湿法脱硫+管束式除尘后经两座烟囱H1-1和H1-2排放 The process waste gas is collected as boiler fuel and discharged through the boiler chimney after combustion. The boiler waste gas is discharged through two chimneys H1-1 and H1-2 after low-nitrogen combustion + SNCR + bag-type dust collector + limestone-gypsum wet desulfurization + bundle type dust removal
			15万吨/年丁二烯装置改扩建项目 150,000t/a BD plant reconstruction and expansion project	
			年产7万吨稀土顺丁橡胶项目 70,000t/a rare earth BR project	
			年产15万吨新材料（PBS）项目 150,000t/a New Material (PBS) Project	一期10万吨/年顺酐装置氧化反应废气、真空泵尾气等进入1台蓄热式氧化炉焚烧后经排气筒H2排放；二期10万吨/年顺酐装置氧化反应废气、真空泵尾气等分别进入2台蓄热式氧化炉焚烧后经排气筒H3和H4排放； Waste gas from oxidation reaction, tail gas from vacuum pump, etc. in phase-I 100,000t/a maleic anhydride plant are sent into one regenerative thermal oxidizer and then discharged through exhaust funnel H2. Waste gas from oxidation reaction, tail gas from vacuum pump, etc. in phase-II 100,000t/a maleic anhydride plant are respectively sent into two regenerative thermal oxidizers and then discharged through exhaust funnels H3 and H4.
			45万吨/年低碳烷烃脱氢制烯	项目工艺有机废气输送至3台加热炉做燃料，高温焚烧后经排气筒H5～H7排放，硫酸回收装置

		烃及综合利用项目 450,000t/a low-carbon alkane dehydrogenation to olefins and comprehensive utilization project	产生的二氧化硫经二级碱吸收后经H8高空排放，催化剂连续再生废气经碱液喷淋后通过H9排放 The process organic waste gas of the project is sent to 3 heating furnaces for fuel, and then discharged through exhaust funnels H5-H7 after high-temperature incineration. The sulfur dioxide produced by the sulfuric acid recovery plant is absorbed by the secondary alkali and then discharged through exhaust funnel H8; the waste gas generated by the continuous catalyst regeneration is sprayed with the alkali liquor before discharged through exhaust funnel H9.	
		催化剂制备及评价装置项目 Catalyst preparation and evaluation equipment project	1#烘干炉和焙烧炉燃烧废气、2#烘干炉废气、2#焙烧炉废气、经氨吸收塔处理后的含氨废气、硫化加热炉废气、经布袋除尘器处理后的造粒废气分别经H10～H16高空排放 Combustion waste gas from 1# drying furnace and roasting furnace, waste gas from 2# drying furnace, waste gas from 2# roasting furnace, ammonia-containing waste gas treated by ammonia absorber, waste gas from vulcanization heating furnace and granulation waste gas treated by bag-type dust collector are respectively discharged at high altitude through H10-H16	
		污水处理工程项目 Sewage treatment project 金山污水厂扩建项目 Jinshan sewage treatment plant expansion project	污水处理过程废气经收集后进入锅炉进行焚烧，燃烧后经电厂锅炉烟囱H1排放 The waste gas from the sewage treatment process is collected and then sent into the boiler for incineration, after which, it is discharged through the chimney H1 of power plant boiler.	
2	废水 Wastewater	项目废水 Project wastewater	年产15万吨新材料（PBS）项目的生产废水先经预处理装置处理后再与其他项目的废水一起进入厂区污水站处理；厂区污水站一期处理规模520m³/h，二期处理规模720m³/h。 Production wastewater from 150,000t/a new material (PBS) project is treated by the pretreatment plant and then sent into plant area sewage treatment plant together with the wastewater of other projects for treatment. The phase-I treatment scale of the plant area sewage treatment plant is 520m^3/h, and the phase-II treatment scale is 720m^3/h.	处理达标后通过齐鲁排海管线排入小清河 When reaching the standard after treatment, the wastewater is discharged into Xiaoqing River through seaward sewage discharge pipelines of Qilu Petrochemical
3	噪声 Noise	设备运行噪声 Equipment running noise	室内布置、消声、减震 Interior layout, noise reduction, shock absorption	
4	固废 Solid waste	危险废物 Hazardous waste	现有危废暂存库2座，一座737m²位于清洁燃气项目北侧，一座150m²位于清洁燃气项目西侧 There are 2 temporary hazardous waste storage warehouses, one is 737m^2 located on the north of clean gas project, and the other is 150m^2 located on the west of clean gas project.	

			一般固废及生活垃圾 General solid waste and municipal solid wastes	厂内建设有50m²炉渣暂存库、300m²的粉煤灰库、200m²的石膏库和100m²的污泥存放间等一般固废仓库，设置有收集生活垃圾的垃圾箱多处 General solid waste warehouses such as 50m² slag temporary storage warehouse, 300m² fly ash warehouse, 200m² gypsum stockpile and 100m² sludge storeroom are built in the plant, and there are several garbage bins for municipal solid wastes.
	5	风险 Risks		厂区建设15000m³事故水池，建设了完备的三级防控体系；厂内现有一座高架和一座（4台）地面火炬，满足现有和在建项目紧急泄压使用 A 15,000m^3 emergency water tank has been built in the plant area, with a complete three-level prevention and control system established. There is an elevated torch and a ground torch (four sets) in the plant area, which can only be available for emergency pressure relief of existing projects and projects under construction.

2.4.1.5 产品情况

2.4.1.5 Products

新厂区各项目的产品方案具体见表 2-19。

Product plans for each project in new plant area are shown in Table 2-19.

表 2-19 新厂区现有工程实际产能情况

Table 2-19 Actual Capacity of Existing Projects in the New Plant Area

序号 No.	项目名称 Item	产品 Product	产量t/a Output (t/a)	运行时间 Operation time
1	年产10万吨丁二烯项目 100,000t/a BD project	丁二烯 BD	10万吨 100,000t	8000h
2	15万吨/年丁二烯装置改扩建项目 150,000t/a BD plant reconstruction and expansion project	丁二烯 BD	5万吨 50,000t	8000h
3	年产7万吨稀土顺丁橡胶项目 70,000t/a rare earth BR project	顺丁橡胶 BR	7万吨 70,000t	8000h
4	年产15万吨新材料（PBS）项目 150,000t/a New Material (PBS) Project	顺酐 Maleic anhydride	20万吨 200,000t	8000h
5	45万吨/年低碳烷烃脱氢制烯烃及综合利用项目 450,000t/a low-carbon alkane dehydrogenation to olefins and comprehensive utilization project	丙烯 Propylene	10万吨 100,000t	8000h
		叔丁醇 TBA	5万吨 50,000t	8000h
		MTBE	35万吨 350,000t	8000h
6	催化剂制备及评价装置项目 Catalyst preparation and evaluation equipment project	氧化态催化剂 Oxidation catalyst	2000.66吨 2000.66t	7920h
		铜系催化剂 Copper catalyst	1001.46 吨 1001.46t	7920h
		硫化催化剂 Sulfurization catalyst	1009.92 吨 1009.92t	7920h
		硫酸钠 Sodium sulfate	1754.674 吨 1754.674t	7920h

2.4.1.6 新厂区现有项目污染物产排情况

2.4.1.6 Production and discharge of pollutants of existing projects in the new plant area

新厂区废水和废气的处理走向图具体见图 2-11。

See Figure 2-11 for the treatment flow chart of wastewater and waste gas in the new plant area.

1、废气

1. Waste gas

（1）有组织废气排放情况

(1) Intentional waste gas emissions

新厂区现有年产 10 万吨丁二烯项目、15 万吨/年丁二烯装置改扩建项目等生产装置废气和污水站收集的废气主要成分是非甲烷烃类气体、一氧化碳、硫化氢、氨等，通过管网输送到

3×240t/h 循环流化床锅炉焚烧，净化后废气经排气筒（H1）排放。
The waste gas from existing production plants in the new plant area (such as 100,000t/a BD project, and 150,000t/a BD plant reconstruction and expansion project), and the waste gas collected from sewage treatment plants mainly contains non-methane hydrocarbon gas, carbon monoxide, hydrogen sulfide, ammonia, etc., and are piped to the 3×240t/h circulating fluidized bedboiler for incineration through the pipe network; the purified waste gas is discharged through exhaust funnel (H1).

年产 7 万吨稀土顺丁橡胶项目在干燥过程中产生的干燥废气主要成分是非甲烷总烃，通过管网输送到 3×240t/h 循环流化床锅炉焚烧，最终经排气筒（H1）120m 排放。
The dry waste gas produced in the drying process of 70,000t/a rare earth BR project mainly contains non-methane hydrocarbon, which is piped to the 3×240t/h circulating fluidized bedboiler through the pipe network for incineration, and finally discharged through the 120m-high exhaust funnel (H1).

企业金山污水场产生恶臭经收集后，通过管网输送到 3×240t/h 循环流化床锅炉焚烧，最终经排气筒（H1）排放。
The malodor produced by the Jinshan Sewage Treatment Plant is collected and piped to the 3×240t/h circulating fluidized bedboiler for incineration through the pipe network, and finally discharged through the 120m-high exhaust funnel (H1).

年产 15 万吨环保新材料（PBS）项目一期 10 万吨顺酐装置废气主要成分是非甲烷总烃类气体、一氧化碳、顺酐等，管道输送至蓄热氧化炉燃烧净化，净化后废气经 35m 高排气筒（H2）排放；二期两条 5 万吨顺酐装置生产线产生的废气主要成分是非甲烷烃类气体、一氧化碳、顺酐等，管道输送至蓄热氧化炉燃烧净化，净化后废气分别经 1 根排气筒（H3、H4）35m 排放。
The waste gas of phase-I 100,000t maleic anhydride plant under 150,000t/a environmentally friendly new material (PBS) project mainly contains non-methane hydrocarbon gas, carbon monoxide, maleic anhydride, etc., and piped to the regenerative thermal oxidizer for combustion purification; the purified waste gas is discharged through 35m-high exhaust funnel (H2) respectively. The waste gas of two 50,000t maleic anhydride plant production lines in phase II mainly contains non-methane hydrocarbon gas, carbon monoxide, maleic anhydride, etc., and piped to the regenerative thermal oxidizer for combustion purification; the purified waste gas is discharged through one 35m-high exhaust funnel (H3, H4) respectively.

45 万吨/年低碳烷烃脱氢制烯烃及综合利用项目废气产生量主要成分是非甲烷烃类气体、叔丁醇、甲酸、甲醚等，管道输送至加热炉（3 台）燃烧净化，净化后废气经 70m 高排气筒（H5、H6、H7）排放；硫酸回收和硫酸裂解炉废气经 2 级碱吸收后通过 40m 高排气筒（H8）排放；催化剂再生过程产生的氯气、氯化氢废气经 2 级碱吸收后通过 7 排气筒（H9）75m 排放。
The waste gas of 450,000t/a low-carbon alkane dehydrogenation to olefins and comprehensive utilization project mainly contains non-methane hydrocarbon gas, TBA, formic acid, methyl ether, etc., and is piped to heating furnaces (3 furnaces) for combustion purification; the purified waste gas is discharged through 70m-high exhaust funnels (H5, H6, H7). The waste gas from sulfuric acid recovery and the sulfuric acid cracking furnace is absorbed by the second-stage alkali and

discharged through the 40m-high exhaust funnel (H8). The waste chlorine and hydrogen chloride generated by the catalyst regeneration process is absorbed by the second-stage alkali and discharged through the 7 exhaust funnel (H9) at an altitude of 75m.

催化剂制备及评价项目主要污染物为二氧化硫、氮氧化物、颗粒物、氨等，1#烘干炉和焙烧炉燃烧废气、2#烘干炉废气、2#焙烧炉废气、经氨吸收塔处理后的含氨废气、硫化加热炉废气、经布袋除尘器处理后的造粒废气分别经 H10～H16 高空排放。

Main pollutants in the catalyst preparation and assessment project are sulfur dioxide, NOx, particulate matter, ammonia, etc. Combustion waste gas of 1# drying furnace and roasting furnace, waste gas from 2# drying furnace, waste gas from 2# roasting furnace, ammonia-containing waste gas treated by ammonia absorber, waste gas from vulcanization heating furnace and granulation waste gas treated by bag-type dust collector are respectively discharged at high altitude through H10-H16.

自 2019 年 11 月起，齐翔腾达增加了现有 SNCR 脱硝装置的喷氨量，由本次监测及在线监测数据可见，3×240t/h 循环流化床锅炉排气筒目前排放的颗粒物、SO_2、NOx、汞及其化合物、烟气黑度排放浓度均满足《火电厂大气污染物排放标准》(DB37/664-2019)表 2 标准（颗粒物 5mg/m³、SO_2 35mg/m³、NOx 50mg/m³、林格曼黑度 1 级）。

Since November 2019, Qixiang Tengda Chemical has increased the ammonia injection amount of existing SNCR denitration plants. From this monitoring and on-line monitoring data, the Ringelman emittance and emission concentrations of particulate matter, SO2, NOx, mercury and their compounds and flue gas currently emitted from exhaust funnels of 3×240t/h circulating fluidized bedboilers all comply with the standards in Table 2 of t Emission Standard of Air Pollutants for Thermal Power Plants (DB37/664-2019) (5mg/m³ for particulate matter, 35mg/m³ for SO2, 50mg/m³ for NOx, and Grade-I Ringelman emittance).

排气筒 H2 排放 SO_2、NOx、烟尘浓度低于《区域性大气污染物综合排放标准》（DB37/2376-2019）中表 1 中大气污染物排放浓度限值重点控制区要求（$SO_2$50mg/m³、NOx100mg/m³、烟尘 10mg/m³）；丙烯酸和非甲烷总烃的排放满足《挥发性有机物排放标准第 6 部分：有机化工》（DB37/2801.6－2018）表 1 中的Ⅱ时段标准要求和《石油化学工业污染物排放标准》（GB31571-2015）表 6 新污染源大气污染物排放标准要求（丙烯酸 10mg/m³、非甲烷总烃 60mg/m³）。

Concentrations of SO2, NOx and smoke dust from exhaust funnel H2 are lower than the value required for key control areas (50mg/m³ for SO2, 100mg/m³ for NOx and 10mg/m³ for smoke dust) under atmospheric pollutant emission concentration limit in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019). The emission of acrylic acid and NMHC meet the requirements of Period II standards specified in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018) and the discharge standard of atmospheric pollutant from new pollution sources (10mg/m³ for acrylic acid and 60mg/m³ for NMHC) specified in Table 6 of Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015).

排气筒 H3 和 H4 排放烟尘浓度低于《区域性大气污染物综合排放标准》（DB37/2376-2019）表 1 大气污染物排放浓度限值重点控制区要求（烟尘 10mg/m³）；丙烯酸和非甲烷总烃的排放

满足《挥发性有机物排放标准第 6 部分：有机化工》（DB37/2801.6－2018）表 1 中的 I 时段标准要求和《石油化学工业污染物排放标准》（GB31571-2015）表 6 新污染源大气污染物排放标准要求（丙烯酸 20mg/m³、非甲烷总烃 120mg/m³）。

The concentration of smoke dust from exhaust funnels H3 and H4 is lower than the atmospheric pollutant emission concentration limit for key control areas (10mg/m³ for smoke dust) specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019). The emission of acrylic acid and NMHC meet the requirements of Period I standards specified in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018) and the discharge standard of atmospheric pollutant from new pollution sources (20mg/m³ for acrylic acid and 120mg/m³ for NMHC) specified in Table 6 of Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015).

排气筒 H5、H6 和 H7 排放的 SO_2、NOx、颗粒物和非甲烷总烃排放均能满足《石油化学工业污染物排放标准》（GB31571-2015）表 5 大气污染物特别排放限值要求。

The emission of SO2, NOx, particulate matter and NMHC from exhaust funnels H5, H6 and H7 can all meet the requirements of special emission limits for atmospheric pollutants specified in Table 5 of Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015).

排放的甲醇、丙酮、乙醛均能满足《石油化学工业污染物排放标准》（GB31571-2015）表 5 和《挥发性有机物排放标准 第 6 部分：有机化工》（DB37/ 2801.6－2018）表 2 中的标准要求（甲醇 50mg/m³、丙酮 50mg/m³、乙醛 20mg/m³）。

Methanol, acetone and acetaldehyde emitted can all meet the standard requirements (50mg/m³ for methanol, 50mg/m³ for acetone and 20mg/m³ for acetaldehyde) specified in Table 5 of Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015) and Table 2 of the Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018).

排气筒 H8 排放的 SO_2、NOx、颗粒物排放均能满足《区域性大气污染物综合排放标准》（DB37/2376-2019）中表 1 中排放标准要求。

The emission of SO2, NOx and particulate matter from exhaust funnel H8 can all meet the emission standard requirements specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019).

排气筒 H9 排放的氯气、氯化氢和非甲烷总烃的排放均能满足《石油化学工业污染物排放标准》（GB31571-2015）表 5 大气污染物特别排放限值要求。

The emission of chlorine, NOx, hydrogen chloride and NMHC from exhaust funnel H9 can all meet the requirements of special emission limits for atmospheric pollutants specified in Table 5 of Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015).

排气筒 H10 废气可满足《区域性大气污染物综合排放标准》（DB37/2376-2019）中表 1 中大气污染物排放浓度限值重点控制区要求（$SO_2$50mg/m³、NO_X100mg/m³、颗粒物 10mg/m³）。

The concentration of waste gas from exhaust funnel H10 can meet the atmospheric pollutant emission concentration limit for key control areas (50mg/m³ for SO2, 100mg/m³ for NOx and 10mg/m³ for PM) specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019).

排气筒 H11 废气可满足《区域性大气污染物综合排放标准》（DB37/2376-2019）中表 1 中大气污染物排放浓度限值重点控制区要求（$SO_2$50mg/m³、NO_X100mg/m³、颗粒物 10mg/m³）。
The concentration of waste gas from exhaust funnel H11 can meet the atmospheric pollutant emission concentration limit for key control areas (50mg/m³ for SO2, 100mg/m³ for NOx and 10mg/m³ for PM) specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019).

排气筒 H12 废气可满足《区域性大气污染物综合排放标准》（DB37/2376-2019）中表 1 中大气污染物排放浓度限值重点控制区要求（$SO_2$50mg/m³、NO_X100mg/m³、颗粒物 10mg/m³）。
The concentration of waste gas from exhaust funnel H12 can meet the atmospheric pollutant emission concentration limit for key control areas (50mg/m³ for SO2, 100mg/m³ for NOx and 10mg/m³ for PM) specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019).

排气筒 H13 含氨废气排气筒废气可满足《无机化学工业污染物排放标准》（GB31573-2015）中表 4 大气污染物特别排放标准限值要求（氨：10mg/m³）。
The ammonia-containing waste gas from exhaust funnel H13 can meet the requirements of atmospheric pollutant special emission standard limits (10mg/m³ for ammonia) specified in Table 4 of Emission Standards of Pollutants for Inorganic Chemical Industry (GB31573-2015).

排气筒 H14 焙烧工序分解排气筒 SO_2 废气可满足《区域性大气污染物综合排放标准》（DB37/2376-2019）中表 1 中大气污染物排放浓度限值重点控制区要求（$SO_2$50mg/m³）、硫酸雾及硫化氢废气可满足《无机化学工业污染物排放标准》（GB31573-2015）中表 4 大气污染物特别排放标准限值要求（硫酸雾 50mg/m³、硫化氢 50mg/m³）。
The decomposition of SO2 waste gas from exhaust funnel H14 roasting process can meet the requirements of atmospheric pollutant emission concentration limits for key control areas (50mg/m³ for SO2) specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019); sulfuric acid mist and hydrogen sulfide waste gas can meet the requirements of atmospheric pollutant special emission standard limits specified in Table 4 of Emission Standards of Pollutants for Inorganic Chemical Industry (GB31573-2015) (50mg/m³ for sulfuric acid mist and 50mg/m³ for hydrogen sulfide).

排气筒 H15 废气可满足《区域性大气污染物综合排放标准》（DB37/2376-2019）中表 1 中大气污染物排放浓度限值重点控制区要求（$SO_2$50mg/m³、NO_X100mg/m³、颗粒物 10mg/m³）。
The concentration of waste gas from exhaust funnel H15 can meet the atmospheric pollutant emission concentration limit for key control areas (50mg/m³ for SO2, 100mg/m³ for NOx and 10mg/m³ for PM) specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019).

排气筒 H16 废气可满足《区域性大气污染物综合排放标准》（DB37/2376-2019）中表 1 中大气污染物排放浓度限值重点控制区要求（颗粒物 10mg/m³）。
Waste gas from exhaust funnel H16 is lower than the atmospheric pollutant emission concentration limit for key control areas (10mg/m³ for particulate matter) specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019).

（2）无组织排放废气

(2) Fugitive emission of waste gas

齐翔腾达新厂区的无组织氯化氢、苯、甲苯、二甲苯、颗粒物、非甲烷总烃排放浓度满足《石油化学工业污染物排放标准》(GB31571-2015)中表 7 和《挥发性有机物排放标准 第 6 部分：有机化工》（DB37/ 2801.6－2018）表 3 标准要求（氯化氢 0.2mg/m³、苯 0.1mg/m³、甲苯 0.2mg/m³、二甲苯 0.2mg/m³、苯并(a)芘 8ng/m³、颗粒物 1mg/m³、VOCs2.0mg/m³）；硫酸雾厂界排放浓度满足《大气污染物综合排放标准》（GB16297-1996）表 2 中厂界监控浓度要求（硫酸雾 1.2mg/m³、氯气 0.4mg/m³）；硫化氢、氨、臭气浓度的排放均符合《有机化工企业污水处理厂（站）挥发性有机物及恶臭污染物排放标准》（DB37/3161－2018）表 2 要求（0.03mg/m³、1.0mg/m³ 和 20（无量纲））。

Emission concentration of fugitive hydrogen chloride, benzene, toluene, xylene, particulate matter and NMHC in the new plant area of Qixiang Tengda Chemical Co., Ltd. meet the requirements specified in Table 7 of Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015) and Table 3 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018) (0.2mg/m³ for hydrogen chloride, 0.1mg/m³ for benzene, 0.2mg/m³ for toluene, 0.2mg/m³ for xylene, 8ng/m³ for benzo(a), 1mg/m³ for particulate matter, and 2.0mg/m³ for VOCs). Emission concentration of sulfuric acid mist at the plant boundary meets the boundary monitoring concentration requirements specified in Table 2 of Integrated Emission Standards of Air Pollutants (GB16297-1996) (1.2mg/m³ for sulfuric acid mist and 0.4mg/m³ for chlorine). Emission concentration of hydrogen sulfide, ammonia and stink all meet the requirements (0.03mg/m³, 1.0mg/m³ and 20 (dimensionless)) specified in Table 2 of Emission Standard of Volatile Organic Compounds and Odor Pollutants for Wastewater Treatment Plant of Organic Chemical Industrial Enterprises (DB37/3161-2018).

2、废水

(2) Wastewater

齐翔腾达新厂区现有项目中的年产 15 万吨新材料（PBS）项目（顺酐项目）的生产废水先经高浓度废水预处理工程处理后再与其他项目的生产废水一起进入金山污水处理厂深度处理；新厂区的循环冷却系统排水和化水车间浓水则直接进入了 400m³/h 废水回用技术改造项目处理后回用；齐翔腾达老厂区进入金山污水处理厂深度处理的废水量为 485076.9m³/a

Production wastewater from 150,000t/a New Material (PBS) Project (Maleic Anhydride Project) among existing projects in the new plant area of Qixiang Tengda Chemical Co., Ltd. is treated by the high-concentration wastewater pretreatment process before sent to Jinshan Sewage Treatment Plant for advanced treatment together with the production wastewater from other projects. The drained water of circulating cooling system in the new plant area and the concentrated water in the chemical water workshop are directly sent to 400m³/h wastewater reuse technical renovation project for treatment and reuse. There are 485076.9m³/a wastewater in the old plant area of Qixiang Tengda Chemical Co., Ltd. sent to Jinshan Sewage Treatment Plant for advanced treatment.

齐翔腾达厂区的废水经金山污水处理场处理后能够满足《石油化学工业污染物排放标准》(GB31571-2015)、《流域水污染物综合排放标准 第 3 部分：小清河流域》（DB37/3416.3-2018）以及淄博市人民政府关于印发《淄博市打好小清河流域及沂河水污染防治攻坚战作战方案》

的通知（淄政办字[2019]23 号）要求（COD≤40mg/L，NH3-N≤2mg/L，总氮≤15mg/L，总磷≤0.5mg/L，氟化物≤2mg/L）。

After treated by Jinshan Sewage Treatment Plant, the wastewater from the plant areaof Qixiang Tengda Chemical Co., Ltd. can meet the requirements specified in Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015), Integrated Wastewater Discharge Standard for Basin- Part 3: Xiaoqing River Basin (DB37/3416.3-2018) and the Notice of Zibo People's Government on Issuing the Zibo's Plan for Water Pollution Prevention and Control in Xiaoqing River Basin and Yi River (Z.Z.B.Zi [2019] No.23) (COD≤40mg/L, NH3-N≤2mg/L, total nitrogen ≤15mg/L, total phosphorus ≤0.5mg/L, fluoride ≤2mg/L).

3、固废

3. Solid waste

新厂区现有项目一般固废产生量为 333100.45t/a，危险废物平均产生量为 260.79t/a；新厂区现有两个危废暂存间，一座面积为 737m² 位于清洁燃气项目北侧，一座面积为 150m²位于清洁燃气项目西侧；满足危废暂存要求。

Existing projects in the new plant area produce 333100.45t/a general solid waste and 260.79t/a hazardous waste. There are currently two hazardous waste temporary storerooms in the new plant area, one with an area of 737m² located on the north to the clean gas project and the other with an area of 150m²on the west to the clean gas project. They comply with the requirements for temporary storage of hazardous wastes.

4、噪声

4. Noise

各厂界昼夜间噪声均能满足《工业企业厂界环境噪声排放标准》（GB12348-2008）3 类标准要求。

The noise of each plant boundary between day and night can meet the requirements of Category-III standards specified in Emission Standards for Industrial Enterprises Noise at Boundary (GB12348-2008).

2.6 齐翔腾达电厂锅炉排污许可证执行情况

2.6 Implementation of emission permit against power plant boilers of Qixiang Tengda Chemical

根据 2017 年 6 月 29 日淄博齐翔腾达化工股份有限公司新厂区电厂的锅炉取得的排污许可证（编号：91370300734705165400 1P），齐翔腾达新厂区电厂锅炉废气许可年排放量限值为：颗粒物为 69.260t/a、$SO_2$242.410t/a、NO_X692.600t/a

According to the emission permit (No. 91370300734705165400 1P) for power plant boilers in the new plant area of Zibo Qixiang Tengda Chemical Co., Ltd. on June 29, 2017, the permitted annual emission limits of waste gas from power plant boilers in the new plant area of Qixiang Tengda Chemical Co., Ltd. are as follows: 69.260t/a for particulate matter, 242.410t/a for SO2, and 692.600t/a for NOX.

齐翔腾达新厂区电厂锅炉排放的二氧化硫、氮氧化物、颗粒物的量均满足排污许可证的许可要求。

The amount of sulfur dioxide, nitrogen oxides and particulate matter emitted by the power plant boilers in the new plant area of Qixiang Tengda Chemical meets the licensing requirements specified in the emission permit.

2.10 小结

2.10 Summary

齐翔腾达股份公司新厂区和老厂区的现有及在建工程各装置均符合国家产业政策要求；根据各装置验收监测数据、近期监测数据及相应的环评结论，各项污染物均可达标排放；污染物排放符合总量控制要求。

Each plant of existing projects and projects under construction of both new and old plant areas of Qixiang Tengda Chemical all meet the national industrial policy requirements. According to the acceptance monitoring data of each plant, the recent monitoring data and the corresponding EIA conclusions, all pollutants can realize the up-to-standard discharge. The pollutant discharge meets requirements of total load control.

3.1.2 项目基本情况

3.1.2 About the project

项目名称：淄博齐翔腾达化工股份有限公司 30 万吨/年环氧丙烷项目

Project Name: Zibo Qixiang Tengda Chemical Co., Ltd. 300,000t/a Propylene Oxide Project

建设单位：淄博齐翔腾达化工股份有限公司

Employer: Zibo Qixiang Tengda Chemical Co., Ltd.

建设地点：淄博市齐鲁化学工业园，南沣路北侧、冯北路西侧，齐翔腾达新厂区内

Place of Construction: Zibo Qilu Chemical Industry Park, north of Nanfeng Road, west of Fengbei Road, within the new plant area of Qixiang Tengda Chemical Co., Ltd.

建设性质：新建

Construction nature: newly built

占地面积：78750m²

Floor area: 78750m²

建设周期：24 个月

Construction period: 24 months

项目投资：项目总投资 375520 万元，其中环保投资 4940 万元，占总投资的 1.3%。

Project investment: the total investment of the Project is RMB3.7552 billion, of which environmental protection investment is RMB49.4 million, accounting for 1.3% of the total investment.

备案主要建设内容为年产 20.5 万吨双氧水装置、年产 30 万吨环氧丙烷装置，备案中双氧水装置规模按照 100%过氧化氢备案，拟建项目配套建设的双氧水装置生产的为 70%双氧水，折算为 70%的双氧水规模是 292857.1t/a，并配套建设废气处理设施、废水预处理设施等环保设施。项目备案时双氧水按照 100%浓度备案。

Main construction contents filed are 205,000t/a hydrogen peroxide plant and 300,000t/a epoxy propane plant. In the filing. The scale of hydrogen peroxide plant is filed as 100% hydrogen peroxide; the hydrogen peroxide plant to be built in the proposed project produces 70% hydrogen peroxide, which translates into a scale of 292,857.1t/a for 70% hydrogen peroxide. Environmental protection facilities such as waste gas treatment facility and wastewater pretreatment facility are also provided. When filing the project, hydrogen peroxide shall be filed at 100% concentration.

表 3-1 项目组成一览表

Table 3-1 List of Project Composition

分类 Classification	项目 Item	主要建设内容 Main construction contents	备注 Note
主体工程 Main work	双氧水装置 Hydrogen peroxide plant	本装置主要包括氢化单元、氧化单元、萃取单元、精馏单元等部分，产能是292857.1t/a双氧水（70%） The plant mainly includes hydrogenation unit, oxidation unit, extraction unit, rectification unit and other parts, with a production capacity of 292857.1t/a hydrogen peroxide (70%)	新建 Newly built
	环氧丙烷装置 HPPO plant	本装置主要包括环氧丙烷（PO）反应单元、丙烯回收单元、环氧丙烷精制单元、甲醇回收单元、丙二醇（PG）回收单元及丙二醇单甲醚回收单元等部分，产能是30万t/a环氧丙烷 The plant mainly includes propylene oxide (PO) reaction unit, propylene recovery unit, epoxy propane rectification unit, methanol recovery unit, propylene glycol (PG) recovery unit and propylene glycol monomethyl ether recovery unit, etc., with a production capacity of 300,000t/a propylene oxide	新建 Newly built
辅助工程 Ancillary works	综合楼 Complex building	位于厂区东南角，主要进行办公生活等 Located in the southeast corner of plant area, mainly used for office purposes, etc.	新建 Newly built
	维修间、五金库 Maintenance room, hardware warehouse	位于厂区南侧 Located on the south side of plant area	依托现有 Relying on the existing one
	化验室 Control Laboratory	位于维修间和五金仓库南侧 Located on the south side of maintenance room and hardware warehouse	依托现有 Relying on the existing one
公用工程 Utilities	给水系统 Water supply system	依托现有供水措施，用水由园区自来水供给，供水水源为地下水和引黄水 With existing water supply measures, the water is supplied from tap water in the park, and the water supply sources are groundwater and water diverted from Yellow River.	依托现有 Relying on the existing one
	排水系统 Drainage system	雨污分流，本项目产生的工艺废水经本项目配套建设的厌氧+好氧污水站处理后与其他环节产生的废水和生活污水一起排入齐翔腾达厂区内金山污水处理场处理，处理达标后由齐鲁石化排海管线排入小清河 With rainwater-sewage diversion, process wastewater generated in the Project, after treated by the anaerobic + aerobic sewage station, is discharged into Jinshan Sewage Treatment Plant in the plant area of Qixiang Tengda Chemical Co., Ltd., together with the wastewater and domestic sewage generated in other links, and then discharged into Xiaoqing River by seaward sewage discharge pipelines of Qilu Petrochemical after reaching	新建 Newly built

		the treatment standard.	
	循环水系统 Circulating water system	新建循环水冷却装置，包括冷却塔及其他设备，设计规模为20000m³/h Newly-built circulating water cooling plant, including cooling tower and other equipment, with a design scale of 20,000m³/h	新建 Newly built
	脱盐水站 Demineralized water station	扩建现有脱盐水站规模，新增脱盐水供应能力1300m³/h Expand the scale of the existing demineralized water station and 1300m³/h demineralized water supply capacity added (nitrogen-containing system)	扩建 Expansion
	空压站（含氮气系统） Air compression station (including nitrogen system)	现有空压站站增加空压机，新增压缩空气供应能力12000Nm³/h Air compressor is added to the existing air compressor station, with 12000Nm³/h supply capacity of compressed air added.	扩建 Expansion
	制冷系统 Refrigerating system	新建螺杆式冷却机组 Newly-built screw-type cooling unit	新建 Newly built
	供热系统 Heat supply system	蒸汽由厂区现有锅炉和配套焚烧炉共同提供 Steam shall be provided jointly by existing boilers and supporting incinerators in the plant area	新建+依托现有 Newly-built + existing ones
	供电系统 Power supply system	新建一座110kV变电站，内设110kV供配电系统；一座35/10/0.4kV变电所，内设35kV供配电系统、10kV配电系统和0.4kV配电系统 New 110kV substation with 110kV power supply and distribution system is constructed; one 35/10/0.4 kV substation with 35kV power supply and distribution system, 10kV power distribution system and 0.4 kV power distribution system	新建 Newly built
	管廊 Pipe gallery	用于罐区到装置的物料管线运输，并布置相应的蒸汽等公用工程的管线 It is used for supplies pipeline transportation from the tank farm to the plant, and corresponding pipelines for public works such as steam are arranged.	新建 Newly built
储运工程 Storage & transportation works	装卸车 Loader	依托在建项目配套的装卸车设施，包括环氧丙烷装车鹤管5 Relying on the supporting loading and unloading facilities for projects under construction, including 5 epoxy propane loader crane pipes, 台，丙二醇装车鹤管1台，甲醇卸车鹤管3台 1 propylene glycol loader crane pipe and 3 methanol unloader crane pipes	依托 Relying on the existing facilities
	罐区 Tank area	依托在建项目配套的4台5000m³环氧丙烷内浮顶储罐，2台1000m³丙二醇固定顶储罐，2台3000m³甲醇内浮顶储罐 Relying on 4 sets of 5000m³ epoxy propane internal floating roof storage tanks, 2 sets of 1000m³ propylene glycol fixed roof storage tanks and 2 sets of 3000m³ methanol internal floating roof storage tanks supporting the projects under construction	依托 Relying on the existing facilities
环保工程 Environment protection	废气处理 Exhaust gas treatment	双氧水装置：（1）氧化工序废气通过活性炭吸附处理后，通过1座排气筒P1排放。（2）氢化工序废气和双氧水精馏工序废气经焚烧炉处理，焚烧炉废气采取低氮燃烧+SNCR脱硝	新建 Newly built

works		+余热锅炉+喷淋处理，废气通过1座50m高排气筒P2排放；环氧丙烷装置：各塔废气经焚烧炉焚烧处理后，通过1座15m高排气筒P2排放。（3）污水预处理设施废气加盖收集引至锅炉焚烧，通过1根60m高排气筒排放 Hydrogen peroxide plant: (1) After treated by activated carbon adsorption, the waste gas from oxidation process is discharged through an exhaust funnel P1. (2) Waste gas from the hydrogenation process and the hydrogen peroxide rectification process are treated by an incinerator. Waste gas from the incinerator is treated by low-nitrogen combustion + SNCR denitration + waste heat boiler + sprayer, and then discharged through a 50m-high exhaust funnel P2. Epoxy propane plant: After incinerated by incinerator, waste gas from each tower is discharged through a 15m high exhaust funnel P2. (3) Waste gas from the sewage pretreatment facilities shall be covered, then collected and led to the boiler for incineration, and discharged through a 60m high exhaust funnel	
	废水处理 Wastewater treatment	新建一座厌氧+好氧工艺污水处理站对工艺废水进行预处理经预处理的工艺废水与其他环节产生的废水、生活污水和初期雨水一起排入厂区内金山污水处理场处理，处理达标后由齐鲁石化排海管线排入小清河 A new anaerobic + aerobic process wastewater treatment station is built to pretreat the process wastewater. Pretreated process wastewater, together with wastewater generated from other links, domestic sewage and initial runoff, is discharged into Jinshan Sewage Treatment Plant in the plant area for treatment and then discharged into Xiaoqing River by seaward sewage discharge pipelines of Qilu Petrochemical after reaching the standard upon the treatment.	新建 Newly built 依托现有 Relying on the existing one
	噪声降噪 Noise reduction	基底减震、隔声、消音等，降噪效果在10dB～20dB不等 Shock absorption of the foundation, sound insulation and silencing, etc., and the noise reduction effect varies from 10dB to 20dB.	新建 Newly built
	固废处理 Solid waste treatment	在项目西北角新建1座面积为180m²的危废仓库，废气收集引至焚烧炉焚烧 A new hazardous waste warehouse with an area of 180m² is built in the northwest corner of the Project, and waste gas is collected and led to the incinerator for incineration.	新建 Newly built
	事故风险 Accident risk	装置区设有0.15m的围堰，事故废水收集依托厂区现有的15000m³事故水池及导排系统 The plant area is equipped with 0.15m cofferdam, and the accident wastewater collection is made based on the existing 15000m³ emergency water tank and drainage system in the plant area	依托现有 Relying on the existing one
		事故状态下的泄压气依托在建项目70万吨/年丙烷脱氢项目高架火炬进行处置；装置区西北角设置了初期雨水池，用于收集装置区的初期雨水 Decompressed gas in the emergency state is disposed of by the elevated torch of the 700,000t/a PDH project under construction. An initial runoff pond is set up in the northwest corner of the plant area, to collect initial runoff in the plant area.	新建/依托 Newly built + relying on the existing facilities

序号 No.	项目 Item		单位 Unit	数量 Quantity	备注 Note
1	产品方案 Product mix	双氧水 Hydrogen peroxide	t/a	292857.1	70%过氧化氢， 70% hydrogen peroxide, 用于生产环氧丙烷 used for producing epoxy propane
		环氧丙烷 Propylene oxide	t/a	300000	外售 Sale
		丙二醇 PG	t/a	7800	副产，外售 By-product, for external sales
2	年操作时间 Annual operation time		h	8000	
3	公用工程用量 Consumption of utilities	新鲜水 Fresh water	t/h	108.75	
		生活水 Domestic water	t/h	10	
		天然气 Natural gas	Nm^3/h	60	
		中压蒸汽2.0MPa Medium-pressure steam, 2.0MPa	t/h	110.4	
		耗电量 Power consumption	KWh/h	28633	
4	劳动定员 Manpower quota		人 Persons	115	
5	装置占地面积 Floor area of the plant		$104m^2$	7.875	
6	工程建设总投资（筹资额） Total investment in project construction (funding amount)		万元 RMB 10,000	375520	
6.1	建设投资 Construction investment		万元 RMB 10,000	325938	
6.2	增值税 VAT		万元 RMB 10,000	31839	
6.3	建设期资金筹措费 Financing charges during construction period		万元 RMB 10,000	10362	
6.4	铺底流动资金 Initial working capital		万元 RMB 10,000	7381	
7	营业收入 Operating revenue		万元 RMB 10,000	339904	
8	增值税		万元	10917	

	VAT	RMB 10,000		
9	营业税金及附加 Business tax and surcharges	万元 RMB 10,000	1310	
10	总成本费用 Total cost	万元 RMB 10,000	290807	
11	利润总额 Total profit	万元 RMB 10,000	36870	
12	所得税 Income tax	万元 RMB 10,000	5530	
13	净利润 Net profit	万元 RMB 10,000	31339	
14	项目投资财务内部收益率 Project investment financial internal rate of return			
14.1	所得税前 Before income tax	%	14.72	
14.2	所得税后 After income tax	%	12.96	
15	项目投资财务净现值 Project investment financial net present value			
15.1	所得税前 Before income tax	万元 RMB 10,000	94528	ic=10%
15.2	所得税后 After income tax	万元 RMB 10,000	57786	ic=10%
16	总投资收益率 Total return on investment	%	11.19	
17	投资回收期 Investment payback period	年 Years	8.34	含两年建设期 Including a two-year construction period

3.3 产品方案和质量指标

3.3 Product mix and quality indexes

表 3-4 产品方案

Table 3-4 Product Mix

序号 No.	产品 Products	产量（t/a） Output (t/a)	备注 Note
1	双氧水 Hydrogen peroxide	292857.1	70%过氧化氢浓度，用于生产环氧丙烷，备案文件中是 100%过氧化氢 70% hydrogen peroxide concentration for the production of epoxy propane, 100% hydrogen peroxide filed

2	环氧丙烷 Propylene oxide	300000	外售 Sale
3	丙二醇 PG	7800	副产品，外售 By-product, for external sales
4	丙二醇单甲醚 Propylene glycol monomethyl ether	7627.6	副产品，外售 By-product, for external sales

3.4.1 原辅料消耗

3.4.1 Consumption of raw materials and auxiliary materials

表 3-9 双氧水原辅材料消耗情况一览表

Table 3-9 Consumption of Hydrogen Peroxide Raw and Auxiliary Materials

序号 No.	名称 Description	规格 Specification	形态 Form	储存位置 Storage location	储存方式 Storage method	年耗量 Annual consumption	最大存储量（t） Maximum storage capacity/t	来源 Source	运输方式 Transportation method
1	氢气 Hydrogen	99.9%	气态 Gaseous state	/	/	12390.7Nm³	/	来自在建的70万吨/年丙烷脱氢装置 From 700,000t/a PDH plant under construction	管道 Pipeline
2	钯触媒 Palladium catalyst	0.3%	固体 Solid	化学品库 Chemicals warehouse	桶装 Barreled	[redacted]	10	外购 Outsourced	汽车 Automobiles
3	活性氧化铝 Activated alumina	Φ3~5mm	固体 Solid		桶装 Barreled	[redacted]	70	外购 Outsourced	汽车 Automobiles
4	2-乙基蒽醌 2-ethylanthraquinone	98.5%	固体 Solid		袋装 Bagged	[redacted]	10	外购 Outsourced	汽车 Automobiles
5	重芳烃 Heavy aromatics	96%	液态 Liquid	装置区中间罐 Tundish in plant area	储罐 Storage tank	[redacted]	67	外购 Outsourced	汽车 Automobiles
6	磷酸三辛酯 Trioctyl phosphate	99.5%	液体 Liquid		储罐 Storage tank	[redacted]	70.4	外购 Outsourced	汽车 Automobiles
7	磷酸 Phosphoric acid	85%	液体 Liquid	装置区 Plant area	桶装 Barreled	[redacted]	1t	外购 Outsourced	汽车 Automobiles

表 3-10 环氧丙烷原辅材料消耗情况一览表

Table 3-10 Consumption of Epoxy Propane Raw and Auxiliary Materials

序号 No.	原辅材料名称 Designation of raw & auxiliary materials	规格 Specification	形态 Form	储存位置 Storage location	储存方式 Storage method	年耗量（t/a） Annual amount (t/a)	最大存储量（t） Maximum storage capacity /t	来源 Source	运输方式 Transportation method
1	丙烯 Propylene	聚合级 Polymer grade	液态 Liquid	依托罐区 Relying on tank farm	储罐 Storage tank	229346.5	8500	现有装置 Existing plants	管道输送 Pipeline transport
2	双氧水 Hydrogen peroxide	70%	液态 Liquid	装置区 Plant area	储罐 Storage tank	292857.1	7684	双氧水装置 Hydrogen peroxide plant	管道输送 Pipeline transport
3	甲醇 Methanol	99.9%	液体 Liquid	依托罐区 Relying on tank farm	储罐 Storage tank	[redacted]	6044	外购 Outsourced	槽车 Tanker
4	[redacted]	/	液态 Liquid	装置区 Plant area	储罐 Storage tank	[redacted]	20	外购 Outsourced	槽车 Tanker
5	[redacted]	/	液态 Liquid	装置区 Plant area	储罐 Storage tank	[redacted]	22	外购 Outsourced	槽车 Tanker
6	[redacted]	[redacted]	液态 Liquid	装置区 Plant area	储罐 Storage tank	[redacted]	53	外购 Outsourced	槽车 Tanker
7	氢气 Hydrogen	/	气态 Gaseous state	/	/	[redacted]	不储存 Not stored	在建项目 Projects under construction	管道输送 Pipeline transport
8	[redacted]	[redacted]	液态 Liquid	装置区 Plant area	储罐 Storage tank	[redacted]	117	外购 Outsourced	管道输送 Pipeline transport
9	环氧化反应催化剂 Epoxidation reaction catalyst	/	固态 Solid	/	桶装 Barreled	[redacted]	不储存 Not stored	外购 Outsourced	汽车 Automobiles
10	加氢催化剂 Hydrogenati	/	固态 Solid	化学品仓库	桶装 Barrel	[redacted]	[redacted]	外购 Outsource	汽车 Automobile

	on catalyst			Chemical warehouse	ed			d	s
11	[redacted]	/	固态 Solid	/	桶装 Barreled	[redacted]	不储存 Not stored	外购 Outsourced	汽车 Automobiles
12	丙二醇单甲醚回收溶剂 Recovered solvent of propylene glycol monomethyl ether	/	液态 Liquid	化学品仓库 Chemical warehouse	桶装 Barreled	16	1	外购 Outsourced	汽车 Automobiles

3.5 生产设备

3.5 Production equipment

3.7.3 焚烧炉

3.7.3 Incinerator

拟建项目配套设废气/废液焚烧炉 1 座，废气/废液污染物处理能力分别为 850kg/h、2500kg/h。焚烧炉烟气经低氮燃烧器+SNCR+余热回收+喷淋处理后通过 1 根 50m 高排气筒 P2 排放。焚烧炉由江苏瑞鼎环境工程有限公司设计。焚烧炉进料方式为自动进料，运行方式均为连续运行。

The proposed project is equipped with one waste gas/waste liquid incinerator, with the waste gas/waste liquid pollutant treatment capacity of 850kg/h and 2500kg/h respectively. Flue gas from the incinerator is discharged through a 50m high exhaust funnel P2 after being treated by low-nitrogen combustor + SNCR + waste heat boiler + sprayer. The incinerator is designed by Jiangsu Ruiding Environment Engineering Co., Ltd. Feeding mode of the incinerator is automatic feeding, and the with continuous operation as operation mode.

表 3-25 焚烧炉设计技术参数表

Table 3-25 Technical Parameters of Incinerator Design

序号 No.	项目 Item	单位 Unit	数值 Value	GB18484-2001 要求 Requirements	HJ/T176-2005 要求 Requirements
1	废气污染物设计处理量 Designed treatment capacity of waste gas pollutants	kg/h	2500（废气） 2500 (waste gas)	— -	— -
2	废液污染物设计处理量 Designed treatment capacity of waste liquid pollutants	kg/h	850（废液） 850 (waste liquid)		
3	热量损失 Loss of heat	%	15%	— -	— -
4	出口烟气氧含量 Oxygen content of outlet flue gas	%	6～7 6~7	6～10 6~10	6～10 6~10
5	燃烧室温度 Temperature of combustion chamber	℃	1100	≥1100	— -
6	烟气停留时间 Flue gas retention time	s	＞2 >2	≥2	＞2 >2
7	焚烧效率 Incineration efficiency	%	≥99.9	≥99.9	— -
8	焚毁去除率 Incineration removal rate	%	≥99.99	≥99.99	— -
9	焚烧残渣的热灼减率 Thermal burn-down rate of incineration residue	%	＜5	＜5	＜5
10	天燃气消耗量 Consumption of natural gas	Nm^3/h	10	— -	— -
11	设计烟气量	Nm^3/h	30740	—	—

	Designed capacity of flue gas			-	-
12	炉体有效容积 Effective volume of furnace body	m^3	70.65	— -	— -
13	炉体直径（内径） Furnace body diameter (inner diameter)	m	3.76	— -	— -
14	炉本体有效长度 Effective length of furnace body	m	10	— -	— -

根据上表，拟建焚烧炉设计满足《危险废物集中焚烧处置工程建设技术规范》（HJ/T176-2005）和《危险废物焚烧污染控制标准》(GB18484-2001)要求。

From the above table, the design of proposed incinerator complies with Technical specifications for Centralized Incineration Facility Construction on Hazardous Waste (HJ/T176-2005) and Pollution Control Standard for Hazardous Wastes Incineration (GB18484-2001).

3.8 污染物产生治理及达标情况分析

3.8 Analysis of pollutant generation, treatment and compliance

3.8.1 废气

3.8.1 Waste gas

3.8.1.1 有组织废气治理措施及排放情况

3.8.1.1 Organized waste gas treatment measures and emissions

1、活性炭吸附措施废气

1. Activated carbon adsorption measures for waste gas

拟建项目双氧水装置氧化工序氧化塔尾气（G1-5）、氧化液贮槽解析尾气（G1-6）、活性炭再生吹扫不凝气（G1-7）经活性炭吸附处理后通过 1 根 15m 高排气筒 P1 排放。

Tail gas from the oxidation column (G1-5), tail gas from the parsing of oxidation liquid storage tank (G1-6) and the non-condensable gas from the activated carbon regeneration purging (G1-7) in the oxidation process of hydrogen peroxide plant of the proposed project are discharged through a 15m high exhaust funnel P1 after being treated by activated carbon adsorption.

拟建项目双氧水装置氧化工序 VOCs 能满足《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 1Ⅱ时段排放限值要求（VOCs 60mg/m^3、3kg/h）。

VOCs from the oxidation process of hydrogen peroxide plant of the proposed project can meet the Period II emission limits (60mg/m^3 for VOCs, 3kg/h) specified in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018).

2、焚烧炉废气

2. Waste gas from incinerator

拟建项目双氧水装置工作液配制、氢化工序产生废气，主要是工作液中间槽废气（G1-1）、氢化塔氢化尾气（G1-2）、氢化液贮槽解析尾气（G1-3）、白土吸附床吹扫冷凝不凝气（G1-4），环氧化反应器废气（G2-1）、氧气汽提塔废气（G2-2）、环氧化反应催化剂再生废气（G2-3）、环氧丙烷精馏塔废气（G2-4）、加氢处理器废气（G2-5）、甲醇精馏塔废气（G2-6）、丙二醇

回收多效蒸发器废气（G2-7）、丙二醇精馏塔废气（G2-8）、丙二醇单甲醚回收单元粗甲醇塔废气（G2-9）、醚分离塔废气（G2-10），废气均引入焚烧炉焚烧处理。同时，环氧丙烷装置丙烯分离塔塔顶废液（S2-2）、甲醇塔废液（S2-5）、丙二醇精馏塔塔底废液（S2-6）、丙二醇单甲醚回收单元醚分离塔废液（S2-8）引入焚烧炉焚烧处理。

Waste gas generated in the working solution preparation and hydrogenation process of the hydrogen peroxide plant in the proposed project mainly comprises waste gas (G1-1) from the working solution intermediate tank, hydrogenation tail gas (G1-2) from the hydrogenation tower, tail gas (G1-3) from the parsing of hydrogenation liquid storage tank, non-condensable gas (G1-4) from the purging and condensing of clay adsorption bed, waste gas (G2-1) of epoxidation reactor, waste gas (G2-2) from oxygen stripping column, waste gas (G2-3) from epoxidation reaction catalyst regeneration, waste gas (G2-4) from epoxy propane rectification column, waste gas (G2-5) from hydrogenation processor, waste gas (G2-6) from methanol rectification column, waste gas (G2-7) from propylene glycol recovery multi-stage evaporator, waste gas (G2-8) from propylene glycol rectification column, waste gas (G2-9) from crude methanol column of propylene glycol monomethyl ether recovery unit, and waste gas (G2-10) from methyl ether separating column. All such waste gas is led into the incinerator for incineration. Additionally, the top waste liquid (S2-2) from propylene separating column of the epoxy propane plant, the waste liquid (S2-5) from methanol column, the bottom waste liquid (S2-6) from propylene glycol rectification column and the waste liquid (S2-8) from the ether separating column of propylene glycol monomethyl ether recovery unit are led into the incinerator for incineration.

焚烧炉颗粒物、SO_2、NOx 排放浓度满足《区域性大气污染物综合排放标准》（DB37/2376-2019）表 1 重点控制区标准要求（SO_2 50mg/m³、NOx 100mg/m³、颗粒物 10mg/m³）；VOCs 排放浓度及排放速率满足《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 1Ⅱ时段排放限值要求（VOCs 60mg/m³、3kg/h）；甲醇、环氧丙烷、二噁英排放浓度满足《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 2 排放限值要求（甲醇 50mg/m³、环氧丙烷 20mg/m³、二噁英 0.1ng-TEQ/m³）；CO 排放满足《危险废物焚烧污染控制标准》（GB18484-2001）表 3 中标准要求（CO 80mg/m³）；NH3 排放满足《火电厂烟气脱硝工程技术规范 选择性非催化还原法》（HJ563-2010）及《恶臭污染物排放标准》（GB14554-93）表 2 排放限值（NH3：8mg/m³,35kg/h）。

Emission concentration of particulate matter, SO2 and NOx from incinerator complies with the standards for key control areas in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019) (50mg/m³ for SO2, 100mg/m³ for NOx, 10mg/m³ for PM). Emission concentration and rate of VOCs can meet Period II emission limits (60mg/m³ for VOCs, 3kg/h) specified in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018). Emission concentration of methanol, epoxy propane and dioxin meet the emission limit requirements (50mg/m³ for methanol, 20mg/m³ for epoxy propane and 0.1ng-TEQ/m³ for dioxin) specified in Table 2 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018). CO emission meets the standard requirements (80mg/m³ for CO) specified in Table 3 of Pollution Control Standard for Hazardous Wastes Incineration (GB18484-2001). NH3 emission meets the emission limit requirements (NH3: 8mg/m³, 35kg/h) specified in Engineering Technical Specification of Flue Gas Selective Non-catalytic Reduction Denitration for Thermal Power Plant (HJ563-2010) and Table 2

of Emission Standards for Odor Pollutants (GB14554-93).

3、污水处理站废气

3. Waste gas from sewage treatment plant

拟建项目污水处理站产生的废气，主要成分为氨、硫化氢、VOCs，废气收集后引入锅炉焚烧处理，通过 120m/65m 高排气筒排放。

Waste gas generated by the sewage treatment plant of the proposed project mainly consists of ammonia, hydrogen sulfide and VOCs, which, after collection, shall be led into the boiler for incineration and then discharged through the 120m/65m high exhaust funnel.

污水站有组织废气满足《有机化工企业污水处理厂（站）挥发性有机物及恶臭污染物排放标准》（DB37/3161-2018）表 1 要求。

Intentional waste gas from sewage treatment plant meets the requirements specified in Table 1of Emission Standard of Volatile Organic Compounds and Odor Pollutants for Wastewater Treatment Plant of Organic Chemical Industrial Enterprises (DB37/3161-2018).

3.8.1.2 无组织废气排放情况

3.8.1.2 Non-organized exhaust emissions

1、废气污染源

1. Waste gas pollution source

拟建项目正常情况下无组织排放源包括设备动静密封处泄漏、罐区无组织废气和装卸车无组织废气。

Normally, fugitive emission sources of the proposed project include leakage at the dynamic and static seals of equipment, fugitive waste gas from the tank farm and unorganized waste gas from the loader and unloader.

2、无组织废气控制措施

2. Control Measures for Non-organized Exhaust Gas

项目无组织废气控制措施能够满足《挥发性有机物无组织排放控制标准》（GB37822-2019）、《重点行业挥发性有机物综合治理方案》中要求。

Fugitive waste gas control measures of the Project can meet the requirements specified in Control Standard for Unorganized Emission of Volatile Organic Compounds (GB37822-2019) and Plan for Comprehensive Treatment of Volatile Organic Compounds in Key Industries.

3.8.2.2 废水处理措施

3.8.2.2 Waste water treatment measures

拟建项目配套建设污水预处理站，采取厌氧+好氧工艺，处理后废水排入金山污水处理场处理。该污水处理站今后会处理厂区规划的其他项目，因此污水处理站设计厌氧系统处理规模 102m³/h，好氧系统处理规模 190m³/h。

The proposed project will be equipped with a sewage pretreatment plant, which will adopt anaerobic + aerobic process. Treated wastewater will be discharged into Jinshan Sewage Treatment Plant, which will also treat other projects planned in the plant area; so the sewage treatment plant is designed with an anaerobic system treatment captaincy of 102m³/h and an aerobic system treatment

captaincy of 190m³/h.

表 3-44 污水站设计进出水水质指标一览表(mg/L)

Table 3-44 Designed Influent and Effluent Quality Indicators of Sewage Treatment Plant (mg/L)

单元 Unit	项目 Item	COD（mg/l） COD (mg/L)	氨氮（mg/l） Ammonia nitrogen (mg/L)	总磷（mg/l） Total phosphorus (mg/L)
调节池 Regulating reservoir	进水 Influent	≤14300	/	/
	出水 Effluent	≤14300	/	/
	去除率 Removal rate	0%	/	/
高效气浮池 High-efficiency floatation tank	进水 Influent	≤14300	/	/
	出水 Effluent	≤14300	/	/
	去除率 Removal rate	0%	/	/
臭氧催化氧化 Ozone catalytic oxidation	进水 Influent	≤14300	/	/
	出水 Effluent	≤13585	/	/
	去除率 Removal rate	5%	/	/
水解酸化池 Hydrolysis and acidification pool	进水 Influent	≤13585	/	/
	出水 Effluent	≤13585	/	/
	去除率 Removal rate	0%	/	/
BIC厌氧反应器 BIC anaerobic reactor	进水 Influent	≤13585	/	/
	出水 Effluent	≤3000	/	/
	去除率 Removal rate	78%	/	/
好氧处理 Aerobic treatment	进水 Influent	≤2000	≤100	≤30
	出水 Effluent	≤1000	≤10	≤7.5
	去除率 Removal rate	50%	90%	75%
二沉淀 Secondary sedimentation	进水 Influent	≤1000	≤10	≤7.5

	出水 Effluent	≤1000	≤10	≤7.5
	去除率 Removal rate	/	/	/

拟建项目预处理后工艺废水和地面冲洗水、余热锅炉排污水、脱盐水站浓水、循环冷却系统排污水、生活污水以及装置区初期雨水等满足金山污水处理场进水水质后（COD≤1000mg/L，NH3-N≤20mg/L），进入厂区内金山污水处理场进行深度处理，处理达标后由齐鲁石化排海管线排入小清河。

After the pretreated process wastewater, ground flushing water, waste heat boiler sewerage, concentrated water of demineralized water station, sewerage of circulating cooling system, domestic sewage and initial runoff in the plant area of the proposed project meet the influent water quality requirements of Jinshan Sewage Treatment Plant (COD≤1000mg/L, NH3-N≤20mg/L), they shall be sent into Jinshan Sewage Treatment Plant in the plant area for advanced treatment and then discharged into Xiaoqing River by seaward sewage discharge pipelines of Qilu Petrochemical after reaching the standard upon treatment.

金山污水处理场排水能够稳定满足《流域水污染物综合排放标准 第 3 部分：小清河流域》（DB37/3416.3-2018）重点保护区域限值要求，同时满足淄博市人民政府关于印发《淄博市打好小清河流域及沂河水污染防治攻坚战作战方案》的通知（淄政办字[2019]23 号）要求（COD≤40mg/L，NH3-N≤2mg/L）。

The drainage of Jinshan Sewage Treatment Plant can stably meet the limit requirements for protection zones specified in Integrated Wastewater Discharge Standard for Basin- Part 3: Xiaoqing River Basin (DB37/3416.3-2018), and the requirements specified in the Notice of Zibo People's Government on Issuing the Zibo's Plan for Water Pollution Prevention and Control in Xiaoqing River Basin and Yi River (Z.Z.B.Zi [2019] No.23) (COD≤40mg/L, NH3-N≤2mg/L).

3.8.3 噪声

3.8.3 Noise

本项目建成后，噪声主要来源于压缩机、风机、机泵、冷却塔等设备，其噪声级见下表，其声压级为 80～100dB。设计中采用以下措施减轻对外界影响：①在同类设备中选用低噪声设备；②对大功率机泵、风机加隔声罩，进行隔音处理；③对压缩机进行消声、隔声处理。

After the Project is completed, noise mainly comes from compressor, fan, pump, cooling tower and other equipment. The noise level is shown in the following table, with SPL ranging 80-100dB. In the design, the following measures are adopted to reduce the impact on the outside world: ① Low noise equipment is selected from similar equipment; ② Add acoustic enclosures to high-power pump and fan for sound insulation; ③ Noise elimination and sound insulation shall be carried out on the compressor.

3.8.4 固体废物

3.8.4 Solid waste

拟建项目产生的危废主要是废催化剂、废活性氧化铝、废滤芯、废活性炭、废树脂、丙烯分离塔废液、甲醇回收塔废液、丙二醇精馏塔精馏废液、闪蒸塔废液、废机油、气浮污油等；

产生的一般固废主要是污泥；除此之外还有生活垃圾。

Hazardous wastes generated by the proposed project mainly include spent catalyst, waste activated alumina, waste filter element, spent activated carbon, waste resin, waste liquid from propylene separating column, waste liquid from methanol recovery tower, rectification waste liquid from propylene glycol rectification column, waste liquid from flash column, waste engine oil, air flotation sump oil, etc. General solid waste generated is mainly sludge. In addition, there are municipal solid wastes.

1、废催化剂

1. Spent catalyst

拟建项目双氧水装置氢化塔使用催化剂，催化剂每年更换一次，更换下的废催化剂属于危险废物 HW50 废催化剂，废物代码 261-182-50，产生量[redacted]委托资质单位处置。环氧丙烷装置环氧化反应器、加氢处理器使用催化剂，更换下的废催化剂属于危险废物 HW50 废催化剂，废物代码 261-182-50，产生量分别为[redacted]委托资质单位处置。

Hydrogenation tower of the hydrogen peroxide plant in the proposed project uses the catalyst to be replaced once a year. Spent catalyst so replaced is classified as spent catalyst under hazardous waste HW50, with waste code 261-182-50 and output of [redacted], and is entrusted to the qualified organization for disposal. Catalysts are used in the epoxidation reactor and hydrogenation processor of the epoxy propane plant. Spent catalyst so replaced is classified as spent catalyst under hazardous waste HW50 with waste code 261-182-50. The output of such catalysts is [redacted] and [redacted] respectively, which are entrusted to the qualified organization for disposal.

2、釜底残液

2. Residual liquid at the bottom of kettle

拟建项目丙烯分离塔、甲醇回收塔、丙二醇精馏塔、醚分离塔、闪蒸塔产生釜底残液，均属于危险废物 HW11 蒸（精）馏残渣，废物代码 900-013-11，根据物料衡算，各釜底残液产生量分别为[redacted]，除闪蒸塔废液委托资质单位处置外，其他废液均由焚烧炉处理。

Kettle bottom residual liquid of propylene separating column, methanol recovery tower, propylene glycol rectification column, ether separating column and flash column of the proposed project all classified as distillation (rectification) residue under hazardous waste HW11 with waste code 900-013-11. According to material balance, the output of residual liquid at the bottom of each kettle is [redacted], all waste liquid is treated by incinerator, except that waste liquid from flash column is entrusted to the qualified organization for disposal.

3、废氧化铝球

3. Waste alumina ball

双氧水装置氢化液白土吸附床会产生废氧化铝球，属于危险废物 HW49，废物代码 900-041-49，产生量为[redacted]，委托资质单位处置。

Waste alumina balls will be generated in the clay adsorption bed for the hydrogenation liquid of hydrogen peroxide plant, which is classified as hazardous waste HW49 with waste code 900-041-49 and output of [redacted], and entrusted to the qualified organization for disposal.

4、废滤芯

4. Waste filter element

双氧水装置过滤过程会产生废滤芯，属于危险废物 HW49，废物代码 900-041-49，产生量为 5t/a，委托资质单位处置。

Waste filter elements will be generated in the filtration process of hydrogen peroxide plant, which is classified as hazardous waste HW49 with waste code 900-041-49 and the output of 5t/a, and entrusted to the qualified organization for disposal.

5、废离子交换树脂

5. Waste ion exchange resin

甲醇回收过程会产生废离子交换树脂，废离子交换树脂属于危险废物 HW13 有机树脂类，废物代码 900-015-13，产生量为[redacted]，委托资质单位处置。

Waste ion exchange resin will be generated in the methanol recovery process, and such resin is classified as organic resin under hazardous waste HW13, with waste code 900-015-13 and the output of [redacted], and is entrusted to the qualified organization for disposal.

6、废活性炭

6. Spent activated carbon

本项目双氧水装置氧化塔有机废气配套活性炭吸附，每年更换活性炭 10t/a，属于危险废物 HW49，废物废物代码 900-041-49，委托资质单位处置。

The organic waste gas from oxidation column of the hydrogen peroxide plant in the Project is adsorbed by activated carbon, and the activated carbon is replaced by 10t/a every year, which is classed as hazardous waste HW49 with the waste code is 900-041-49, and is entrusted to the qualified organization for disposal.

7、废机油

7. Waste engine oil

本项目生产设备需定期维护，设备维护产生废机油属于危险废物 HW08 废矿物油与含矿物油废物，危废代码为 900-249-08。项目废机油产生量为 5t/a，委托资质单位处置。

Production equipment of the Project requires regular maintenance; the waste engine oil generated by equipment maintenance is classified as the waste mineral oil and waste containing mineral oil under hazardous waste HW08 with the hazardous waste code 900-249-08. The output of waste engine oil for the Project is 5t/a, which is entrusted to the qualified organization for disposal.

8、气浮池污油

8. Floatation tank sump oil

拟建项目气浮池污油每年清理一次，产生量 1.5t/a，属于危险废物 HW08，危废代码 900-210-08，委托处置。

Floatation tank sump oil of the proposed project is cleaned once a year, with an output of 1.5t/a, which falls under the category of hazardous waste HW08 with hazardous waste code 900-210-08, and is entrusted for disposal.

9、污泥

9. Sludge

拟建项目污水处理站污泥产生量 120t/a，属于一般固废，焚烧处置。

Sludge output in the sewage treatment plant of the proposed project is 120t/a, which is classified as general solid waste and subject to incineration.

10、生活垃圾

10. Domestic waste

本项目劳动定员 115 人，生活垃圾产生量按 1kg/人·天，年运行 333 天。则项目生活垃圾产生量 38.3t/a，由环卫部门定期清运。

Manpower quota of the Project is 115 personnel, and the output of municipal solid wastes generated is 1kg/person/day, with 333 operation days annually; so the Project will generate 38.3t/a municipal solid wastes, which will be cleaned regularly by the sanitation department.

7 环保措施及其经济技术论证

7 Environment Protection Measure and its Technical & Economical Demonstration

7.1 废气污染防治措施及经济技术论证

7.1 Wastewater pollution control measures and their economical & technological demonstration

7.1.1 有组织废气污染防治措施及经济技术论证

7.1.1 Pollution control measures and economic and technical demonstration for intentional waste gas

7.1.1.1 活性炭吸附废气治理措施

7.1.1.1 Treatment measures for activated carbon adsorption of waste gas

拟建项目废气主要为 VOCs 污染物，针对废气来源，拟建项目在对废气进行冷凝回收预处理后，主要采取三级活性炭吸附的措施进行处理，根据大气预测结果，处理后的废气满足相应标准要求，说明采取的措施有效、可行。

Waste gas of the proposed project is mainly VOC pollutants. According to the sources of waste gas, the proposed project mainly adopts three-stage activated carbon adsorption measures to treat the waste gas after pretreatment though condensation and recovery. From the atmospheric prediction results, treated waste gas meets the corresponding standards, indicating that the measures taken are effective and feasible.

拟建项目活性炭吸附-蒸汽脱附废气处理设施为 5 塔设计，3 塔串联吸附，2 塔解析，通过自动化控制系统实现 5 塔轮转切换进行吸附、脱附，确保有 3 台吸附塔处于吸附状态，从而保证整套设施的污染物去除率在 95%以上。

Activated carbon adsorption-steam desorption waste gas treatment facility of the proposed project is designed with 5 columns, including 3 columns for series adsorption and 2 columns for parsing. The automatic control system realizes the rotation switching of the 5 columns for adsorption and desorption, to ensure that 3 adsorption columns are in the adsorption state, thus ensuring that pollutant removal rate of the whole facility is above 95%.

整套废气处理设施的各过程均由 DCS 自动控制，自动切换、交替进行吸附、解吸和干燥三个工艺过程的操作，脱附时间可依照实际废气排放量情况进行手动修改调整，整个流程实现实时自动分析和调节。

Each process of the whole set of waste gas treatment facility is automatically controlled and switched by DCS, and the three technological processes of adsorption, desorption and drying are alternately operated. Desorption time can be manually modified and adjusted according to the actual waste gas emissions, and the real-time automatic analysis and adjustment is realized for whole process.

总体来讲，拟建项目针对工艺废气采取的活性炭纤维吸附设施可行有效。

Generally, the activated carbon fiber adsorption facilities for process waste gas in the proposed project are feasible and effective.

7.1.1.2 焚烧炉废气治理措施

7.1.1.2 Treatment measures for incinerator waste gas

本项目采用 SNCR（炉内喷尿素）脱硝，喷射用尿素溶液浓度为 20%，经喷射装置喷入炉膛内，在有 O_2 存在的情况下与 NO_X 进行选择性反应，使 NO_X 还原为 N_2 和 H_2O，达到脱硝目的。

Inthe Project, SNCR (urea is sprayed in the furnace) is adopted for denitration. The concentration of urea solution for spraying is 20%, which is sprayed into the furnace through sprayer and selectively reacts with NOX in the presence of O2 to reduce NOX to N2 and H2O, thus achieving the purpose of denitration.

SNCR 技术对反应温度有严格的要求，用尿素作为 SNCR 系统还原剂的最佳反应温度区域为 982～1149℃，此温度范围称为“温度窗”，温度过高，氨会被氧化成 NO_X，NO_X 排放量会升高；温度过低，还原反应速率下降，脱硝效率下降，还会引起未反应的 NH_3 逃逸。该焚烧炉炉内温度为 1050～1150℃，炉温在“温度窗”范围内，能够起到较好的脱硝效果。该项目烟气在炉膛高温区的滞留时间大于 2s，能够保证 NO_X 去除率。尿素分解产生的氨与烟气在极短时间内得到充分混合是 SNCR 保证脱硝效率、减少氨逃逸的关键原因之一。本项目 SNCR 系统配备 4 个尿素喷射口，喷射装置将尿素雾化并控制其喷射角度、速度及轨迹，其分散可很快完成。该项目通过 4 个尿素喷射口喷射，能够保证尿素分解的氨与烟气的充分混合。

SNCR technology has strict requirements on reaction temperature. The optimal reaction temperature for urea as reducing agent in SNCR system ranges 982-1149℃, which is called "temperature window". If the temperature is too high, ammonia will be oxidized into NOX and NOX emission will increase; but the reduction reaction rate will decrease, the denitration efficiency will fall, and the unreacted NH_3 will also escape if the temperature is too low. The temperature in incinerator is 1050-1150℃, and the furnace temperature is within the "temperature window", which can achieve better denitration effect. Flue gas stays in the furnace high temperature area of the Project for more than 2s, which can ensure a favorable NOX removal rate. Ammonia and flue gas produced by urea decomposition are fully mixed in a very short time, which is one of the key reasons for SNCR to ensure denitration efficiency and reduce ammonia escape. SNCR system of the Project is equipped with 4 urea injection orifices. The injection device atomizes urea and controls its injection angle, speed and trajectory; so its dispersion can be completed quickly. The Project completes its injection works through four urea injection orifices, ensuring the full mixing of ammonia and flue gas decomposed by urea.

综上，项目采取的废气治理措施具有工艺成熟、设备稳定、净化效率高、可操作性强等优点，在技术上可行，经济上合理。

To sum up, the waste gas treatment measures adopted by the Project are advantaged by mature process, stable equipment, high purification efficiency, strong operability, etc., and are technically feasible and economically reasonable.

7.1.1.3 污水处理站废气治理措施

7.1.1.3 Treatment measures for waste gas from sewage treatment plant

拟建项目配套建设的污水预处理站调节池、气浮机房、水解酸化池、BIC 厌氧反应器、厌氧沉淀池、好氧池、二沉池、集水池废气均密闭收集废气，废气引入锅炉焚烧处理，炉内温度℃，废气焚烧效率＞95%。

Waste gas from the regulating tank, air flotation machine room, hydrolysis acidification pool, BIC

anaerobic reactor, anaerobic sedimentation tank, aerobic tank, secondary sedimentation tank and collection tank in the sewage pretreatment station to be constructed for the proposed project are all collected in an airtight manner, and then is led into the furnace for incineration. Temperature in the furnace is ℃, and the incineration efficiency of waste gas is ＞95%.

针对风机运行、废气量分配、掺烧量分配及各个仪表的信号使用，设置了一套 PLC 自动控制系统，所有控制都由 PLC 实现。PLC 再将系统运行的信号输送至锅炉 DCS 系统，以便热电厂控制室可以对整个锅炉热力焚烧系统进行监控。

A set of PLC automatic control system is provided for fan operation, waste gas distribution, dosage allocation of blending combustion and signaling of various instruments. All controls are realized by PLC. PLC then transmits the signal of operating system to the boiler DCS system so that the control room of thermal power plant can monitor the whole boiler thermal incineration system.

7.1.2 无组织废气污染防治措施

7.1.2 Pollution control measures for fugitive waste gas

1、挥发性有机液体储罐污染控制：拟建项目环氧丙烷、甲醇储罐均采用内浮顶罐并加装机械密封，丙二醇、重芳烃储罐采用固定顶罐加氮封。

1. Pollution control of volatile organic liquid storage tanks: epoxy propane and methanol storage tanks of the proposed project are all equipped with internal floating roof tanks and mechanical seals, while the propylene glycol and heavy aromatics storage tanks are equipped with fixed roof tanks and nitrogen seals.

2、装置泄漏检测与修复（LDAR）

2. Leak detection and repair (LDAR)

综上，技改项目所采取的大气污染防治措施在同类装置中得到证实，运行费用合理，措施可行。

To sum up, atmospheric pollution control measures taken in the technical renovation project have been proved in similar plants, with reasonable operating costs and feasible measures.

7.2 废水污染防治措施及经济技术论证

7.2 wastewater pollution control measures and their economical & technological demonstration

拟建项目预处理后工艺废水和地面冲洗水、余热锅炉排污水、脱盐水站浓水、循环冷却系统排污水、生活污水以及装置区初期雨水等满足金山污水处理场进水水质后（COD≤1000mg/L，NH3-N≤20mg/L），进入厂区内金山污水处理场进行深度处理，处理达标后由齐鲁石化排海管线排入小清河。

After the pretreated process wastewater, ground flushing water, waste heat boiler sewerage, concentrated water of demineralized water station, sewerage of circulating cooling system, domestic sewage and initial runoff in the plant area of the proposed project meet the influent water quality requirements of Jinshan Sewage Treatment Plant (COD≤1000mg/L, NH3-N≤20mg/L), they shall be sent into Jinshan Sewage Treatment Plant in the plant area for advanced treatment and then discharged into Xiaoqing River by seaward sewage discharge pipelines of Qilu Petrochemical after reaching the standard upon treatment.

7.3 固体废物污染防治措施及经济技术论证

7.3 Pollution control measures and economic and technical demonstration for solid waste

拟建项目产生的危废主要是废催化剂、废活性氧化铝、废滤芯、废活性炭、废树脂、丙烯分离塔废液、甲醇回收塔废液、丙二醇精馏塔精馏废液、闪蒸塔废液、废机油、气浮污油等。其中废催化剂、废活性氧化铝、废滤芯、废活性炭、废树脂、废机油、气浮污油委托处置；丙烯分离塔废液、甲醇回收塔废液、丙二醇精馏塔精馏废液、闪蒸塔废液由焚烧炉处理。拟建项目产生的一般固废主要是污泥，焚烧处置；生活垃圾由环卫部门清运。

Hazardous wastes generated by the proposed project mainly include spent catalyst, waste activated alumina, waste filter element, spent activated carbon, waste resin, waste liquid from propylene separating column, waste liquid from methanol recovery tower, rectification waste liquid from propylene glycol rectification column, waste liquid from flash column, waste engine oil, air flotation sump oil, etc. Among them, spent catalyst, waste activated alumina, waste filter element, spent activated carbon, waste resin, waste engine oil and floatation tank sump oil are entrusted for disposal. Waste liquid from propylene separating column, waste liquid from methanol recovery tower, rectification waste liquid from propylene glycol rectification column, and waste liquid from flash column are treated by incinerators. General solid waste generated in the proposed project is mainly sludge, which shall be incinerated; municipal solid wastes are cleaned by the environmental sanitation department.

项目一般固体废物在厂内贮存执行《一般工业固体废物贮存、处置场污染控制标准》（GB18599-2001）及修改单，危险废物在厂内贮存执行《危险废物贮存污染控制标准》（GB18597-2001）及修改单。拟建项目在项目区西北角新建 1 座面积为 180m² 的危废仓库，危废仓库按照《危险废物贮存污染控制标准》（GB18597-2001）及修改单的相关要求做防渗。

The general solid wastes shall be stored in the facility in accordance with Standard for Pollution on the Storage and Disposal Site for General Industrial Solid Wastes (GB18599-2001) and its amendments, and the hazardous wastes shall be stored in the facility in accordance with Standard for Pollution Control on Hazardous Waste Storage (GB18597-2001) and its amendments. A new hazardous waste warehouse with an area of 180m² will be built in the northwest of the project area for the proposed project, with anti-seepage work subject to the Standard for Pollution Control on Hazardous Waste Storage (GB18597-2001) and its amendments.

综上所述，技改项目针对固废自身性质，本着实现固体废物减量化、无害化的原则进行处置，固废处理措施可行。

To sum up, the technical renovation project is based on the nature of solid waste and the principle of solid waste reduction and hazard-free treatment; so solid waste treatment measures are feasible.

7.4 噪声污染防治措施分析

7.4. Analysis of noise pollution control measures

本项目的噪声设备属于常见噪声设备，采取的控制措施是成熟和定型的，从技术角度讲是可靠的，经济上是合理的。通过采取以上噪声污染防治措施，可以将厂界噪声贡献值控制在《工业企业厂界环境噪声排放标准》（GB12348-2008）3 类标准要求范围内。

The equipment generating noise in the Project is categorized as the common petrochemical noise equipment, so the control measures taken are mature and stereotyped. These measures are

technically reliable and economically reasonable. By adopting the above noise pollution control measures, the contribution value of boundary noise can be controlled within Category-III standards of Emission Standards for Industrial Enterprises Noise at Boundary (GB12348-2008).

7.5 环境风险防范措施分析

7.5 Analysis of environmental risk prevention measures

为预防事故发生，设置了集中控制系统，装置区设置危险物品泄露报警装置；为控制事故时事故废水泄漏可能对地表水体造成的污染，厂区建设三级防控体系，在生产区设置导流沟，罐区设置围堰，事故时，将事故废水引入厂区 15000m³的事故水池进行暂存，并关闭总排口，防止发生事故时污染物进入地表水水体。建设单位应急预案已备案，应完善公司风险防范体系。

To prevent accidents, a centralized control system is set up, and a hazardous material leakage alarm device is provided in the plant area. To control the pollution that may be caused to the surface water body by the leakage of accident wastewater during the accident, the plant area shall build a three-level prevention and control system, with diversion ditches set up in the production area and cofferdams set up in the tank farm. In case of the accident, the accident wastewater shall be introduced into the 15000m³ emergency water tank in the plant area for temporary storage and the main outfall shall be closed to prevent pollutants from entering the surface water body during the accident. The emergency preparedness plan of employer has been put on record, and the Company's risk prevention system should be improved.

综上，在落实各项风险防治措施情况下，环境风险可控，处理措施可行。

To sum up, environmental risks are controllable and treatment measures are feasible in case of the implementation of various risk control measures.

10 环境管理与监测计划

10 Environmental Management and Monitoring Plan

10.1.3 现有工程环境管理台账及监测情况

10.1.3 Existing engineering environmental management ledger and monitoring

齐翔腾达已申请循环流化床锅炉排污许可证，许可证编号为 91370300734705165400 1P，发证日期为 2017 年 6 月 29 日，有效期限为 2017 年 6 月 29 日至 2020 年 6 月 28 日。根据排污许可证的相关规定，

Qixiang Tengda Chemical Co., Ltd. has applied for an emission permit of circulating fluidized bedboilers, with a permit No. of 91370300734705165400 1P, the issuance date on June 29, 2017, and the validity period from June 29, 2017 to June 28, 2020. According to the relevant provisions of the emission permit,

10.2 拟建项目环境管理及监测计划

10.2 Environmental management and monitoring plan for the proposed project

10.2.2 监测制度

10.2.2 Monitoring rules

根据《排污单位自行监测技术指南 总则》（HJ819-2017）和《排污单位自行监测技术指南 石

油化学工业》(HJ 947-2018)要求，为规范企业环境监测制度，本次环评针对企业拟建项目污染源情况，制订监测计划，监测方案详细内容见表 10-5、表 10-6。

According to the Self-monitoring Technology Guidelines Pollution Sources - General Rule (HJ819-2017) and Self-monitoring Technology Guidelines for Pollution Sources - Petroleum Chemistry Industry (HJ 947-2018), and to standardize the environmental monitoring system of the Company, this EIA has formulated a monitoring plan for the pollution sources of the proposed projects the Company, as shown in Tables 10-5 and 10-6.

表 10-5 项目污染源主要监测方案

Table 10-5 Main Monitoring Plan for Project Pollution Sources

环境要素 Environment elements	监测位置 Monitoring location	监测项目 Monitoring items	频次 Frequency
废气 Waste gas	焚烧炉排气筒 Incinerator exhaust funnel	二氧化硫、氮氧化物、烟尘 Sulfur dioxide, NOx, smoke dust	在线实时监测 On-line real-time monitoring
		非甲烷总烃、CO NMHC, CO	1次/月 Monthly
		甲醇、环氧丙烷 Methanol, epoxy propane	1次/半年 Once/half a year
		二噁英 Dioxin	1次/年 Annually
	活性炭吸附装置 Activated carbon adsorption device	非甲烷总烃 Non-methane hydrocarbon	1次/月 Monthly
	锅炉排气筒 Exhaust funnel of boiler	非甲烷总烃 Non-methane hydrocarbon	1次/月 Monthly
		氨、硫化氢、臭气浓度 Ammonia, hydrogen sulfide and stench concentration	1次/季度 Quarterly
	厂界 Plant boundary	非甲烷总烃、苯、甲苯、二甲苯、氨、硫化氢、臭气浓度 Concentration of NMHC, benzene, toluene, xylene, ammonia, hydrogen sulfide, stink	1次/季度 Quarterly
废水 Wastewater	废水预处理站排放口 Discharge outlet of wastewater pretreatment station	流量、COD、氨氮 Flow, COD NH3-N	1次/周 Weekly
		pH、SS、总磷、总氮、石油类 pH, SS, total phosphorus, total nitrogen, petroleum	1次/月 Monthly
固废 Solid waste	统计项目固废量 Statistics of project solid waste quantity	统计种类、产生量、处理方式、去向 Statistics to be made for the kinds, generation amount, treatment type and direction where they are sent to	每月一次 Monthly
噪声 Noise	厂界 Plant boundary	L_{eq}	每季度1次 Quarterly

表 10-6 风险应急环境监测方案

Table 10-6 Emergency Monitoring Plan for Risks

环境要素 Environment elements	测点名称 Name of monitoring point	监测项目 Monitoring items	监测频次 Monitoring frequency	备注 Note
环境空气 Ambient air	厂界下风向 Downwind direction of plant boundary 下风向近距离敏感目标 Close-range sensitive target at downwind direction	根据事故类型，针对监测： Depending on the type of accident, for monitoring: ①泄漏事故：VOCs； ① Leakage accident: VOCs; ②火灾等事故：CO等； ② Fire and other accidents: CO, etc.;	事故发生后每1小时取样进行监测，事故后4小时、10小时、24小时各监测一次 Sampling shall be carried out for monitoring every 1 hour after the accident, and monitoring shall be carried out once every 4 hours, 10 hours and 24 hours after the accident.	厂内具备监测能力 The plant has monitoring capability
地表水 Ground surface water	金山污水处理场排水口 Outfall of Jinshan Sewage Treatment Plant	pH、COD、氨氮、石油类 pH, COD, NH3-N, petroleum		

注:根据事故严重性决定监测频次。一般情况下每小时取样一次。随事故控制减弱，适当减少监测频次。
Note: The monitoring frequency is determined according to the severity of accident. Normally, samples are taken on an hourly basis. The frequency of monitoring is properly reduced as the accident control weakens.

11.1.1 产业政策符合性

11.1.1 Industrial policy compliance

根据《产业结构调整指导目录(2019 年本)》，项目不属于鼓励类、限制类及淘汰类，为允许类，符合国家产业政策。项目不属于《关于印发淄博市产业结构调整指导意见和指导目录的通知》（淄政办发[2011]35 号）中的限制发展类和淘汰类，符合淄博市产业政策。

According to the Catalog for Guiding Industry Restructuring (2019 Edition), the Project does not fall under the category of encouraged, restricted and eliminated projects, but allowed ones; so it conforms to the national industrial policy. The Project does not fall under the category of restricted development projects and eliminated projects in the Notice on Issuing the Opinions and Catalogue of Industrial Structure Adjustment in Zibo City (ZZBF [2011] No.35), which conforms to Zibo industrial policy.

项目已备案，项目代码为 2019-370300-26-03-045391。本项目符合国家及淄博市产业政策要求。

The Project has been put on record, with the project code of 2019-370300-26-03-045391. The Project conforms to both the national and Zibo industrial policies.

11.3 小结

11.3 Summary

综上所述，项目符合国家、地方产业政策和相关环保政策要求，符合《齐鲁化学工业区产业发展规划》，本项目用地符合齐鲁化学工业区规划要求。项目的选址给水、排水、供热等基础设施方面均属合理的，区位优势明显；各项环保措施也是可行的，不影响当地的环境功能区

划。在严格执行报告书中的污染防治措施后，从环境角度，项目建设合理可行。

To sum up, the Project conforms to national and local industrial policies and relevant environmental policy requirements, and conforms to Industrial Development Planning of Qilu Chemical Industry Park. The project site selection meets the planning requirements of Qilu Chemical Industry Park. In the project site selection, the infrastructure analysis of water supply, water discharge and heating supply is reasonable, and the regional advantage is obvious. All environmental protection measures are also feasible and do not affect the local environmental function zoning. After strictly implementing the pollution control measures in the report, the project construction is reasonable and feasible from the environmental point of view.

12 评价结论及对策建议

12 Assessment Conclusion and Suggestions

12.1.1 公司及项目概况

12.1.1 Overview of the Company and the Project

淄博齐翔石油化工集团有限公司是集科、工、贸于一体的自主经营、自负盈亏、具有独立法人资格的淄博市股份制企业，其前身为齐鲁石化公司直属集体企业，主营化工产品、化工助剂、橡胶制品、工程承揽等业务，现有从业人员 2000 余人，其中工程技术人员 1161 人，公司销售收入超过 40 亿元。

Zibo Qixiang Petrochemical Industry Group Co., Ltd. is a joint-stock enterprise with independent legal personality. It integrates science, industry and trade and is responsible for its own profits and losses. Previously a collective enterprise directly under Sinopec Qilu Petrochemical Company, it is mainly engaged in chemical products, chemical additives, rubber products, engineering contracts and other businesses, owning over 2,000 employees, including 1,161 engineers and technicians, and achieving a sales income of over RMB4 billion.

淄博齐翔腾达化工股份有限公司（以下简称“齐翔腾达”）是淄博齐翔石油化工集团有限公司的子公司，成立于 2002 年 1 月，依托母公司的技术、人员、市场等资源发展成为具有独立法人资格的淄博市股份制企业。

Established in January 2002, Zibo Qixiang Tengda Chemical Co., Ltd., a subsidiary of Zibo Qixiang Petrochemical Industry Group Co., Ltd., relied on the parent company’s technology, personnel, market and other resources to develop into a joint-stock enterprise with independent legal personality in Zibo.

目前齐翔腾达有两个厂区，一个在齐鲁化学工业区东部区域（以下简称老厂区），另一个在齐鲁化学工业区西南角区域（以下简称新厂区），新老厂区之间的距离约为 6 公里。老厂区和新厂区现有项目环保手续齐全，各项污染物达标排放。

Qixiang Tengda Chemical currently has two plant areas, one in the east of Qilu Chemical Industry Park (hereinafter referred to as the “old plant area”) and the other in the southwest corner of Qilu Chemical Industry Park (hereinafter referred to as the “new plant area”), with a distance of about 6 kilometers between the both plant areas. Existing projects in both the old and new plant areas have complete environmental protection procedures, and all pollutants are of up-to-standard discharge.

老厂区现有 MTBE 装置建设项目、丁烯分离项目、8 万吨/年甲乙酮项目、MTBE 技术改造和碳四综合利用项目、碳四综合利用项目，建有 2 台 35t/h 循环流化床锅炉。

In the old plant area, there are MTBE plant construction project, butene separation project, 80,000 t/a MEK project, MTBE technical renovation and C4 comprehensive utilization project, and C4 comprehensive utilization project, with two 35t/h circulating fluidized bedboilers equipped.

新厂区位于齐鲁化学工业区，南沣路北侧、冯北路西侧。新厂区现有项目包括年产 10 万吨丁二烯项目、15 万吨/年丁二烯装置改扩建项目、年产 7 万吨稀土顺丁橡胶项目、年产 15 万吨环保新材料（PBS）项目、45 万吨/年低碳烷烃脱氢制烯烃及综合利用项目、污水处理工程项目、金山污水厂扩建项目、催化剂制备及评价装置项目、液化轻烃装卸车设施扩建项目、热能综合利用技术改造项目、400m³/h 废水回用技术改造项目等；已建成但未投产的项目为清洁燃气改造项目、清洁燃气改造-危废焚烧炉项目，在建项目为 70 万吨/年丙烷脱氢项目、40 万吨/年叔丁醇及配套 20 万吨/年 MMA 项目、5 万吨/年异丁烯装置项目。现有项目环保手续齐全。

The new plant area is located in Qilu Chemical Industry Park, north to Nanfeng Road and west to Fengbei Road. Existing projects in the new plant area include the 100,000t/a Butadiene Project. 150,000t/a BD plant Renovation and Expansion Project, 70,000t/a Rare Earth BR Project, 150,000t/a environmentally friendly new material (PBS) project, 450,000t/a Low-carbon Alkane to Olefin and Comprehensive Utilization Project, sewage treatment project, Jinshan Sewage Plant Expansion Project, catalyst preparation and assessment plant project, liquefied light hydrocarbon loading and unloading facility expansion project, thermal energy comprehensive utilization technical renovation project, 400m³/h Wastewater Reuse Technical Renovation Project, etc. Projects that have been completed, but not put into operation include Clean Gas Transformation Project and Clean Gas Transformation-Hazardous Waste Incinerator Project. Projects under construction include 700,000t/a PDH Project, 400,000t/a TBA and Supporting 200,000t/a MMA Project and 50,000t/a Isobutene Plant Projects. All environmental protection procedures of existing projects have been gone through.

按照淄博齐翔腾达化工股份有限公司的发展规划，为充分利用在建项目“淄博齐翔腾达化工股份有限公司 70 万吨/年丙烷脱氢项目”丙烯，做到炼化一体化，实现产业链延长、效益最大化，努力发展核心业务、做大总量、降低成本、提高资本回收率的发展战略。齐翔腾达计划在厂区内投资 375520 万元建设淄博齐翔腾达化工股份有限公司 30 万吨/年环氧丙烷项目，项目占地面积约 78750m²。

According to the development plan of Zibo Qixiang Tengda Chemical Co., Ltd., to make full use of propylene in the ongoing project "700,000t/a PDH Project of Zibo Qixiang Tengda Chemical Co., Ltd.", realize refining-chemical integration, and achieve industrial chain extension and maximum benefit, the best efforts shall be made to promote the development strategy of striving to develop core businesses, increasing the volume dose, reducing costs and improving capital recovery rate. Zibo Qixiang Tengda Chemical Co., Ltd. plans to invest RMB3.7552 billion in the plant area to build a 300,000t/a epoxy propane Project, which covers an area of 78750m².

拟建项目已备案，项目代码为 2019-370300-26-03-045391，备案主要建设内容为年产 20.5 万吨双氧水装置、年产 30 万吨环氧丙烷装置，备案中双氧水装置规模按照 100%过氧化氢备案，拟建项目配套建设的双氧水装置生产的为 70%过氧化氢浓度，折算为 70%的双氧水规模是 292857.1t/a，供给环氧丙烷装置使用。拟建项目同时配套建设废气、废水治理措施，配套公

辅工程建设，事故水池依托齐翔腾达。

The proposed project has been filed, with a project code of 2019-370300-26-03-045391. Main construction contents so filed include 205,000t/a hydrogen peroxide plant and 300,000t/a epoxy propane plant. The scale of the hydrogen peroxide plant filed is filed as 100% hydrogen peroxide. The hydrogen peroxide plant to be built in the proposed project produces 70% hydrogen peroxide; so the scale is 292857.1t/a of 70% hydrogen peroxide after conversion, and such 70% hydrogen peroxide is supplied to the epoxy propane plant for use. Additionally, the proposed project will be equipped with waste gas and wastewater treatment measures, public and auxiliary projects and the emergency water tank is built with the support of Qixiang Tengda Chemical Co., Ltd.

12.1.4 拟采取的环保措施及达标情况

12.1.4 Environmental protection measures to be taken and compliance

12.1.4.1 环境空气污染防治措施

12.1.4.1 Pollution control measures for ambient air pollution

拟建项目双氧水装置氧化工序 VOCs 通过活性炭吸附处理满足《挥发性有机物排放标准第 6 部分：有机化工行业》（DB37/2801.6-2018）表 1Ⅱ时段排放限值要求后通过 1 根 15m 高排气筒排放。其他工艺有机废气通过焚烧炉处理后通过 1 根 50m 高排气筒排放。焚烧炉颗粒物、SO_2、NOx 排放浓度满足《区域性大气污染物综合排放标准》（DB37/2376-2019）表 1 重点控制区标准要求；VOCs 排放浓度及排放速率满足《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 1Ⅱ时段排放限值要求；甲醇、环氧丙烷排放浓度满足《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 2 排放限值要求；CO 排放满足《危险废物焚烧污染控制标准》（GB18484-2001）表 3 中标准要求；NH3 排放满足《火电厂烟气脱硝工程技术规范 选择性非催化还原法》（HJ563-2010）及《恶臭污染物排放标准》（GB14554-93）表 2 排放限值。污水处理站废气经加盖收集后引入锅炉燃烧引入锅炉焚烧，NH3、H2S、VOCs 满足《有机化工企业污水处理厂（站）挥发性有机物及恶臭污染物排放标准》（DB37/3161-2018）表 1 要求后通过 120m/65m 高排气筒排放。危废间废气引入锅炉焚烧，VOCs 满足《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 1Ⅱ时段排放限值要求后通过 1 根 120m/65m 高排气筒排放。厂界无组织 VOCs 满足《挥发性有机物排放标准 第 6 部分：有机化工行业》（DB37/2801.6-2018）表 3 排放限值要求。厂界氨、硫化氢、臭气浓度满足《恶臭污染物排放标准》（GB14554-93）表 1 新扩改建二级标准。

VOCs in the oxidation process of hydrogen peroxide plant of the proposed project are discharged through a 15m high exhaust funnel after meeting the Period II emission limits specified in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018) upon activated carbon adsorption treatment. Organic waste gas from other processes is treated by incinerator and then discharged through a 50m high exhaust funnel. Emission concentrations of particulate matter, SO2 and NOx from incinerators meet the standard requirements for key control areas specified in Table 1 of Regional and Integrated Emission Standard of Air Pollutants (DB37/2376-2019). Emission concentration and rate of VOCs can meet the Period II emission limits specified in Table 1 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018). Emission concentration

methanol and epoxy propane can meet the emission limits specified in Table 2 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018). CO emission meets the standard requirements specified in Table 3 of Pollution Control Standard for Hazardous Wastes Incineration (GB18484-2001). **NH3 emission meets the emission limit requirements specified in Engineering Technical Specification of Flue Gas Selective Non-catalytic Reduction Denitration for Thermal Power Plant (HJ563-2010) and Table 2 of Emission Standards for Odor Pollutants (GB14554-93).** Waste gas from the sewage treatment plant is collected by capping and then introduced into the boiler for incineration. NH3, H2S and VOCs are discharged through a 120m/65m high exhaust funnel after meeting the requirements specified in Table 1 of tEmission Standard of Volatile Organic Compounds and Odor Pollutants for Wastewater Treatment Plant of Organic Chemical Industrial Enterprises (DB37/3161-2018). Waste gas from hazardous waste rooms is introduced into boilers for incineration, and VOCs are discharged through a 120m/65m high exhaust funnel after meeting the Period II emission limits specified in Table 1of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801. 6-2018). Fugitive VOCs at plant boundary can meet the emission limits specified in Table 3 of Emission Standard of Volatile Organic Compounds - Part 6: Organic Chemical Industry (DB37/2801.6-2018). The concentrations of ammonia, hydrogen sulfide and stink at the plant boundary meet the Grade III standards for newly, expanded and reconstructed projects specified in Table 1 of Emission Standards for Odor Pollutants (GB14554-93).

项目对周围环境空气的影响较小。

The Project has little impact on the ambient air.

12.1.4.2 废水污染防治措施

12.1.4.2 Wastewater pollution control measures

拟建项目预处理后工艺废水和地面冲洗水、余热锅炉排污水、脱盐水站浓水、循环冷却系统排污水、生活污水以及装置区初期雨水等满足金山污水处理场进水水质后（COD≤1000mg/L，NH3-N≤20mg/L），进入厂区内金山污水处理场进行深度处理，处理达标后由齐鲁石化排海管线排入小清河。金山污水处理场外排废水满足《石油化学工业污染物排放标准》(GB31571-2015)表 2 中直接排放标准、《流域水污染物综合排放标准 第 3 部分：小清河流域》（DB37/3416.3-2018）重点保护区域限值要求，同时满足淄博市人民政府关于印发《淄博市打好小清河流域及沂河水污染防治攻坚战作战方案》的通知（淄政办字[2019]23 号）要求（COD≤40mg/L，NH3-N≤2mg/L）。项目废水不直接排入地表水体，对周围地表水环境影响较小。

After the pretreated process wastewater, ground flushing water, waste heat boiler sewerage, concentrated water of demineralized water station, sewerage of circulating cooling system, domestic sewage and initial runoff in the plant area of the proposed project meet the influent water quality requirements of Jinshan Sewage Treatment Plant (COD≤1000mg/L, NH3-N≤20mg/L), they shall be sent into Jinshan Sewage Treatment Plant in the plant area for advanced treatment and then discharged into Xiaoqing River by seaward sewage discharge pipelines of Qilu Petrochemical after reaching the standard upon treatment. Wastewater discharged outside from Jinshan Sewage Treatment Plant can meet the direct discharge standards specified in Table 2 of Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015), the limit requirements for

protection zones specified in Integrated Wastewater Discharge Standard for Basin- Part 3: Xiaoqing River Basin (DB37/3416.3-2018), and the requirements specified in the Notice of Zibo People's Government on Issuing the Zibo's Plan for Water Pollution Prevention and Control in Xiaoqing River Basin and Yi River (Z.Z.B.Zi [2019] No.23) (COD≤40mg/L, NH3-N≤2mg/L). Wastewater of the project is not directly discharged into the surface water body, and has little impact on the surrounding surface water environment.

12.1.4.3 噪声防治措施

12.1.4.3 Noise control measures

项目主要噪声源为各种机械设备运转产生的噪声，在采取降噪措施并经距离衰减后，厂界噪声预测值可满足《工业企业厂界环境噪声排放标准》（GB12348-2008）中的 3 类标准要求。

The main noise source of the Project is the noise generated by the operation of various machines and equipment. After noise reduction measures are taken and distance attenuation is carried out, the predicted noise value at the plant boundary can meet the Category-III standards specified in the E Emission Standards for Industrial Enterprises Noise at Boundary (GB12348-2008).

12.1.4.4 固废防治措施

12.1.4.4 Solid waste control measures

拟建项目产生的危废主要是废催化剂、废活性氧化铝、废滤芯、废活性炭、废树脂、丙烯分离塔废液、甲醇回收塔废液、丙二醇精馏塔精馏废液、闪蒸塔废液、废机油、气浮污油等。其中废催化剂、废活性氧化铝、废滤芯、废活性炭、废树脂、废机油、气浮污油等委托处置；丙烯分离塔废液、甲醇回收塔废液、丙二醇精馏塔精馏废液、闪蒸塔废液由焚烧炉处理。拟建项目产生的一般固废主要是污水站生化系统污泥，焚烧处置；生活垃圾由环卫部门清运。拟建项目固废均妥善处置。

Hazardous wastes generated by the proposed project mainly include spent catalyst, waste activated alumina, waste filter element, spent activated carbon, waste resin, waste liquid from propylene separating column, waste liquid from methanol recovery tower, rectification waste liquid from propylene glycol rectification column, waste liquid from flash column, waste engine oil, air flotation sump oil, etc. Among them, spent catalyst, waste activated alumina, waste filter element, spent activated carbon, waste resin, waste engine oil and floatation tank sump oil are entrusted for disposal. Waste liquid from propylene separating column, waste liquid from methanol recovery tower, rectification waste liquid from propylene glycol rectification column, and waste liquid from flash column are treated by incinerators. General solid waste generated by the proposed project is mainly sludge from the biochemical system of sewage treatment plant, which will be incinerated for disposal. Municipal solid wastes are cleaned by the environmental sanitation department. Solid wastes of the proposed project are properly disposed of.

12.1.5 技改项目环境影响情况

12.1.5 Environmental impact of the technical renovation project

12.1.5.1 环境空气影响

12.1.5.1 Ambient air impact

项目采取后污染物排放量较小，排放的大气污染物对周围环境影响较小。项目无需设置大气

环境防护距离。

After the Project is adopted, the emission of pollutants is relatively small, and the emitted air pollutants have little impact on the surrounding environment. For the purpose of the Project, atmospheric environmental protection zone is unnecessary.

12.1.5.2 地表水环境影响

12.1.5.2 Surface water environmental impact

拟建项目预处理后工艺废水和地面冲洗水、余热锅炉排污水、脱盐水站浓水、循环冷却系统排污水、生活污水以及装置区初期雨水等满足金山污水处理场进水水质后（COD≤1000mg/L，NH3-N≤20mg/L），进入厂区内金山污水处理场进行深度处理，处理达标后由齐鲁石化排海管线排入小清河。金山污水处理场外排废水满足《石油化学工业污染物排放标准》(GB31571-2015)表 2 中直接排放标准、《流域水污染物综合排放标准 第 3 部分：小清河流域》（DB37/3416.3-2018）重点保护区域限值要求，同时满足淄博市人民政府关于印发《淄博市打好小清河流域及沂河水污染防治攻坚战作战方案》的通知（淄政办字[2019]23 号）要求（COD≤40mg/L，NH3-N≤2mg/L）。项目废水不直接排入地表水体，对周围地表水环境影响较小。项目废水不直接排入地表水体，对周围地表水环境影响较小。

After the pretreated process wastewater, ground flushing water, waste heat boiler sewerage, concentrated water of demineralized water station, sewerage of circulating cooling system, domestic sewage and initial runoff in the plant area of the proposed project meet the influent water quality requirements of Jinshan Sewage Treatment Plant (COD≤1000mg/L, NH3-N≤20mg/L), they shall be sent into Jinshan Sewage Treatment Plant in the plant area for advanced treatment and then discharged into Xiaoqing River by seaward sewage discharge pipelines of Qilu Petrochemical after reaching the standard upon treatment. Wastewater discharged outside from Jinshan Sewage Treatment Plant can meet the direct discharge standards specified in Table 2 of Emission Standard of Pollutants for Petroleum Chemistry Industry (GB31571-2015), the limit requirements for protection zones specified in Integrated Wastewater Discharge Standard for Basin- Part 3: Xiaoqing River Basin (DB37/3416.3-2018), and the requirements specified in the Notice of Zibo People's Government on Issuing the Zibo's Plan for Water Pollution Prevention and Control in Xiaoqing River Basin and Yi River (Z.Z.B.Zi [2019] No.23) (COD≤40mg/L, NH3-N≤2mg/L). Wastewater of the project is not directly discharged into the surface water body, and has little impact on the surrounding surface water environment. Wastewater of the project is not directly discharged into the surface water body, and has little impact on the surrounding surface water environment.

12.1.5.3 地下水环境影响

12.1.5.3 Groundwater environmental impact

项目应对污水管线、废水收集暂存池、事故水池、危废间等采取可靠的防渗防漏措施，防止废水下渗对地下水产生影响。采取治理措施和防渗措施后，项目对区域地下水环境影响较小。

Reliable anti-seepage and anti-leakage measures shall be taken in the Project for sewage pipelines, wastewater collection and temporary storage tanks, emergency water tanks, hazardous waste rooms, etc., to prevent the impact of wastewater infiltration on groundwater. The Project has little impact on the regional groundwater environment after control measures and seepage prevention measures are taken.

12.1.5.4 声环境影响

12.1.5.4 Acoustic environmental impact

项目实施后，各厂界昼、夜间噪声预测值可满足《工业企业厂界环境噪声排放标准》（GB12348-2008）3 类标准要求，对周边声环境及周围敏感点影响较小。

After the project implementation, the predicted daytime and nighttime noise values of each plant boundary can meet the requirements of Category-III standards specified in Emission Standards for Industrial Enterprises Noise at Boundary (GB12348-2008), with little impact on the surrounding acoustic environment and surrounding sensitive spots.

12.1.5.5 环境风险

12.1.5.5 Environmental risks

本项目产品涉及危险化学品的使用，具有一定的潜在危险性。厂区现有容积为 15000m³事故水池 1 座，用于事故状态下消防、事故废水收集，确保事故水不直接排入附近地表水体。项目设置有害气体泄露报警装置，确保气体泄露后可及时发现，防止有害气体泄露发生火灾、爆炸事故。在落实三级防控体系等方面的风险防范措施及应急预案要求后，项目环境风险水平可接受，工程风险能够得到有效控制。

Products of the Project involve the use of hazardous chemicals and have certain potential hazards. There is currently one emergency water tank with a volume of 15000m³ in the plant area, which is used for firefighting and accident wastewater collection under emergency, to ensure that the accident water will not directly be discharged into the nearby surface water body. The Project is equipped with an alarm device for harmful gas leakage to ensure timely detection after gas leakage and prevent fire and explosion accidents caused by harmful gas leakage. After implementing the risk prevention measures and emergency plan requirements of the three-level prevention and control system, the project environmental risk level is acceptable and the project risk can be effectively controlled.

项目符合国家及地方产业政策要求；选址符合规划要求，不在生态红线保护区范围内；项目采取各项环保措施后可实现废气、废水污染物达标排放。落实各项污染治理措施后，满足当地环境功能要求；项目建成后污染物排放总量符合总量控制要求；工程风险能够有效控制；公众支持本项目建设。从环保角度分析，项目的建设是可行的。

The Project conforms to national and local industrial policies; the site selection conforms to planning requirements and is not within the ecological red line protection zone. After the Project adopts various environmental protection measures, waste gas and wastewater pollutants can be discharged up to standard. After the implementation of various pollution control measures, the Project meets the functional requirements of the local environment. Total pollutant load after project completion conforms to the requirements for total load control. The engineering risks can be effectively controlled; and the public supports the construction of the proposed project. From the perspective of environmental protection, the project construction is feasible.