Safety, Health, and Environment Regulation

PT. Chandra Asri Petrochemical, Tbk.

2020 edition

Chandra Asri

APPROVAL

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Preface

This handbook has been developed to socialize SHE regulation information to all CAP employee and contractor staffs who work in PT Chandra Asri Petrochemical Tbk.

This regulation shall be applied to all facilities and businesses of the CAP and to those facilities or businesses of its subsidiary and joint venture companies over which CAP has management control, regardless of type, size and product provided.

All CAP and contractor staffs are expected to follow rule and regulation in this handbook strictly so that all activities can be executed smoothly and orderly, conflicts can be minimized and finally all of us can achieve target in all aspects of safety, schedule, quality and cost.

Should you have any question or difficulties, which this handbook cannot help, please contact your superior or CAP staffs who are responsible for your activities.

Yours sincerely,

Table of Content

1. Purpose

Tujuan

1.1. To reach Zero Loss Time Accident (LTA).

Untuk mencapai Nihil Hilang Waktu Kerja (LTA).

2. Scope

Ruang Lingkup

2.1. Scope of this regulation applies to all persons (employee & contractor personnel) to assure consistency of Health, Safety, and Environment program in PT Chandra Asri Petrochemical Tbk (CAP) and its subsidiary. This regulation shall be applied to all facilities and businesses of the CAP and to those facilities or businesses of its subsidiary and joint venture companies over which CAP has management control, regardless of type, size and product provided.

Lingkup regulasi ini berlaku untuk semua orang (karyawan & kontraktor) untuk memastikan konsistensi program Kesehatan, Keselamatan & Lingkungan di PT Chandra Asri Petrochemical Tbk (CAP) dan anak perusahaannya. Regulasi ini berlaku untuk semua fasilitas dan bisnis CAP dan fasilitas atau bisnis anak perusahaan dan joint venture dimana CAP memiliki kontrak manajemen, terlepas dari tipe, ukuran dan produk yang disediakan.

2.2. Where existing and new facilities do not meet these requirements due to the nature of an organization and its product, this can be considered for exclusion. Appropriate alternatives to these requirements may be implemented with concurrence and support of the CAP Corporate SHE and PSM Department.

Ketika fasilitas yang ada maupun yang baru tidak memenuhi persyaratan ini karena sifat dari suatu organisasi dan produknya, dapat dipertimbangkan untuk pengecualian. Alternatif yang sesuai dengan kebutuhan dapat diimplementasikan dengan persetujuan dan dukungan dari Departemen Corporate SHE and PSM CAP.

3. Term & Definition

Istilah & Definisi

3.1. **AA**. Area Authority, a party who recognized as having operational control for equipments/ area or scope of job in its area or area responsibility which has determined by management and responsible for performing routine inspection of its area

Area Authority. *Area Authority**,** pihak yang memiliki kendali operasional untuk peralatan/ area tertentu atau ruang lingkup pekerjaan di area tersebut atau tanggung jawab area yang telah ditentukan oleh manajemen dan bertanggung jawab untuk melakukan inspeksi rutin di area tersebut*

3.2. **AC**. Alternating Current. Alternating current describes the flow of charge that changes direction periodically. As a result, the voltage level also reverses along with the current

AC. Arus Bolak-Balik. Arus Bolak-Balik merupakan arus aliran yang berubah arah secara periodic. Sehingga, Nilai Tegangan juga berbalik seanjang arus

3.3. **ACI**. Authorized Certified Inspector. CAP Employee who has authority and competency to conduct tools and equipment inspection in accordance with CAP Standard.

***ACI**. Authorized Certified Inspector. Karyawan CAP yang mempunyai kewenangan dan kompetensi melakukan inspeksi alat dan peralatan sesuai standar CAP.*

3.4. **ASME**. American Society of Mechanical Engineers, is a leading international developer of codes and standards associated with the art, science, and practice of mechanical engineering

***ASME**. American Society of Mechanical Engineers, adalah pengembang internasional untuk standard dan kode yang berhubungan dengan seni, ilmu pengetahuan, dan praktek mechanical engineering*

3.5. **BATAN**. Badan Tenaga Nuklir Nasional. BATAN is an Indonesia Non - ministry Government Institute who responsible in government business related with nuclear source researching, developing, and utilizing

***BATAN**. Badan Tenaga Nuklir Indonesia. BATAN merupakan Lembaga Pemerintah Non Kementerian Indonesia yang bertugas melaksanakan tugas pemerintahan di bidang penelitian, pengembangan, dan pemanfaatan tenaga nuklir*

3.6. **CAP**. PT. Chandra Asri Petrochemical

3.7. **CCR**. Central Control Room. Central Control Room of Ethylene and Butadiene, Polyethylene, Polyproylene, PS-1, and PS-2

***CCR**. Central Control Room. Central Control Room dari Ethylene dan Butadiene, Polyethylene, Polyproylene, PS-1, dan PS-2*

3.8. **CSE**. Confined Space Entry, any space that is large enough and so configured that an employee can bodily enter and perform assigned work, has limited or restricted means for entry or exit, and not designed for continuous employee occupancy

***CSE**. Confined Space Entry, ruangan yang cukup besar sehingga seorang pekerja dapat memasuki ruangan dan melakukan pekerjaan, mempunyai akses masuk dan keluar yang terbatas, dan tidak didesain untuk area pekerja terus menerus.*

3.9. **DC**. Direct Current. Direct Current means the undirectional flow of electric charge Voltage and current can vary over long time, so the direction of flow does not change.

DC. Arus Searah. Arus Searah berarti aliran listrik yang tidak dapat bolak-balik. Tegangan dan Arus dapat beurbah sepanjang waktu, sehingga arah aluran tidak berubah

3.10. **ELCB**. Earth Leakage Circuit Breaker. Safety device used in electrical system with high Earth impedance to prevent shock

ELCB. Earth Leakage Circuit Breaker. Alat keselamatan yang digunakan di sistem kelistrikan dengan Impedansi Pembumian tinggi untuk mencegah tersetrum

3.11. **Electrical Power Tools** is a tool that is driven by an electric motor and that is used for the machining material and usually consists of a housing, an electrical motor, and the rotor which is connected to a spindle by means a reduction gear. It such as grinding, electric drill, etc.

***Peralatan Bertenaga Listrik** merupakan alat yang digerakkan dengan menggunakan motor listrik dan digunakan untuk pembuatan material dan biasanya terdiri dari housing, motor listrik, dan rotor yang dihubungkan ke poros dengan menggunakan reduction gear. Contohnya adalah gerinda, bor listrik, dll.*

3.12. **Explossion Proof**. Means have a capable of withstanding an explosion of a specified gas or vapor that may occur within it and of preventing the ignition of a specified gas or vapor surrounding

***Explossion Proof**. Berarti mempunyai kemampuan untuk menahan ledakan dari gas atau uap spesifik yang mungkin terjadi di dalamnya dan mencegah terjadinya pembakaran dari gas atau uap spesifik di sekelilingnya*

3.13. **Flag Alpha**. Flag signal which used to communicate with ships, means “I have a diver down; keep well clear at slow speed.”

***Flag Alpha**. Sinyal bendera yang digunakan untuk berkomunikasi dengan kapal yang berarti “Saya mempunyai penyelam di bawah, jaga area tetap steril dan kurangi kecepatan”*

3.14. **FM.** Factory Mutual. It is an independent testing arm of international insurance carrier, FM Global. This certification uses scientific research and testing to make sure products conform to the highest standards for safety and property loss prevention.

***FM**. Factory Mutual. Sebuah lembaga pengujian dari asuransi internasional, FM Global. Sertifikasi ini menggunakan penelitian ilmiah dan pengujian untuk memastikan produk sesuai dengan standar keselamatan tertinggi dan pencegahan dari hilangnya aset.*

3.15. **GHS**. Global Harmonized System. The GHS is a system for standardizing and harmonizing the classification and. labeling of chemicals

***GHS**. Sistem Harmonisasi Global. GHS merupakan system untuk standardisasi dan harmonisasi klasifikasi dan pelabelan bahan kimia*

3.16. **Gland Cable**. Device which designed to attach and secure the end of an electrical cable to the equipment.

***Gland Cable**. Alat yang didesain untuk melekatkan dan mengamankan ujung kabel listrik ke peralatan*

3.17. **Hydrostatic Test**. A pressure or tightness test where liquid, typically water, as test medium

***Tes Hidrostatik**. Uji tekanan atau kebocoran dimana cairan, secara umum yaitu air, digunakan sebagai media pengujian*

3.18. **Hot Tap**[20]. The technique of attaching a mechanical or welded branch fitting to piping or equipment in service, and creating an opening in that piping or equipment by drilling or cutting a portion of the piping or equipment.

***Hot Tap**. Teknik pemasangan cabang dengan mekanikal atau cabang yang telah dilas yang dipasangkan ke pipa atau peralatan yang sedang digunakan, dan membuat bukaan di pipa atau peralatan tersebut melalui pengeboran atau pemotongan sebagian pipa atau peralatan*

3.19. **IMO**. International Marine Organization. It is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships.

***IMO**. International Marine Organization. IMO merupakan badan khusus Perserikatan Bangsa-Bangsa yang bertanggung jawan terhadap keselamatan dan keamanan perkapalan dan pencegahan polusi kelautan dan udara oleh kapal-kapal*

3.20. **IP**. Ingress Protection. It classifies the degrees of protection provided against the intrusion of solid objects (including body parts like hands and fingers), dust, accidental contact, and water in electrical enclosures

***IP**. Ingress Protection. IP menggolongkan tingkat perlindungan terhadap adanya gangguan dari objek padat (termasuk bagian tubuh seperti tangan dan jari), debu, kontak yang tidak disengaja, dan air di selubung peralatan listrik*

3.21. **IS**. Intrinsically Safe. Intrinsically Safe means protection technique for safe operation of electrical equipment in hazardous areas by limiting the energy, electrical and thermal, available for ignition.

***IS**. Intrinsically Safe. Intrinsically safe berarti teknik perlindungan untuk operasi yang aman untuk peralatan elektrik di hazardous area melalui pembatasan energi, elektrikal dan panas, dan yang bisa menimbulkan api.*

3.22. **JIS**. Japanese Industrial Standard. JIS specifies the standards used for industrial activities in Japan

JIS. Japanese Industrial Standard. JIS menetapkan standar yang digunakan oleh aktivitas industri di Jepang

3.23. **JOHAN**. Job Hazard Analysis. JOHAN is a technique that focuses on job tasks to identify hazards which have concequences for people, asset, environtment, and reputation and to measure its risk based on the likelihood and concequences by Risk Assessment Matrix

***JOHAN**. Job Hazard Analysis. JOHAN merupakan cara yang berfokus pada langkah pekerjaan untuk mengidentifikasi bahaya yang mempunyai dampak pada orang, asset, lingkungan, dan reputasi dan untuk mengukur resikonya berdasarkan pada tingkat kemungkinan dan konsekuensi menggunakan Matriks Penilaian Resiko*

3.24. **JSA**. Job Safety Analysis. JSA is a risk assessment that focuses on daily basis job tasks to identify hazard and countermeasure without Risk Assesment Matrix

***JSA**. Job Safety Analysis. JSA merupakan penilaian resiko yang berfokus pada langkah pekerjaan harian untuk mengidentifikasi bahaya dan penggulangannya tanpa menggunakan Matriks Penilaian Resiko*

3.25. **LTA**. Lost Time Accident (LTA) is an accident that causes the workers can not perform his job within 1 x 24 hours and or permanent disability

***LTA**. Lost Time Accident, merupakan kecelakaan yang menyebabkan pekerja tidak dapat melakukan pekerjaannya dalam 1 x 24 jam dan atau mengalami cacat tetap*

3.26. **MAWP**. Maximum Allowable Working Pressure. MAWP is the maximum gage pressure permissible at the top of a completed vessel in its normal operating position at the designated coincident temperature for that pressure

***MAWP**. Maximum Allowable Working Pressure. MAWP merupakan ukuran maksimal tekanna yang diijinkan di bagian atas bejana tekan dalam posisi normal operasinya pada suhu tertentu untuk tekanan tersebut*

3.27. **Megger Test**. Method of testing making use of an insulation tester resistance meter that will help to verify the condition of electrical insulation

***Megger test**. Metode pengujian menggunakan alat penguji tahanan insulasi yang akan membantu verifikasi kondisi insulasi alat listrik*

3.28. **NBIC**. National Board Inspection Code. NBIC provides a guide for chief inspector. The NBIC provides standards for the installation, inspection, and repair and/or alteration of boilers, pressure vessels, and pressure relief devices

NBIC. National Board Inspection Code. NBIC menyediakan panduan untuk kepala inspektor. NBIC menyediakan standar untuk pemasangan, inspeksi, dan perbaikan dan/ atau modifikasi boiler, bejana tekan, dan pressure relief devices

3.29. **NFPA**. National Fire Protection Association. NFPA is a US organization that has international membership. Its purpose is establishing and updating fire protection and prevention safeguards

NFPA. *National Fire Protection Association. NFPA merupakan organisasi Amerika yang mempunyai keanggotaan internasional. Tujuannya adalah membuat dan memperbaharui perlindungan kebakaran dan perlindungan untuk pencegahan*

3.30. **PCR**. Process Control Room. Control Room which located in Utility Area

PCR*. Process Control Room. Control Room yang berada di lokasi Utility*

3.31. **Pneumatic Test**. A pressure or tightness test where a gas, generally nitrogen or air, is the test medium.

Pneumatic Test*. Uji tekanan atau kebocoran dimana gas, umumnya Nitrogen atau udara digunakan sebagai media uji.*

3.32. **PPE**. Personnel Protection Equipment

3.33. **Pressure Relief Valve**. Pressure relief device which is designed to reclose and prevent the further flow of fluid after normal conditions have been restored.

Pressure Relief Valve*. Pressure relief device yang didesain untuk menutup kembali dan mencegah aliran fluida mengalir dengan lebih banyak setelah kembali ke kondisi normal.*

3.34. **Pressure Safety Valve**. Pressure relief valve characterized by rapid opening or pop action, or by opening in proportion to the increase in pressure over the opening pressure.

Pressure Safety Valve*. Pressure Relief Valve bertipe bukaan cepat atau pop action, atau dengan bukaan yang sesuai dengan kenaikan tekanan melebihi tekanan bukaan.*

3.35. **Pressure Vessel**. Pressure vessels are containers for the containment of pressure, either internal or external. This pressure may be obtained from an external source, or by the application of heat from a direct or indirect source, or any combination thereof

Bejana Tekan*. Bejana tekan merupakan wadah penampungan tekanan baik dari dalam maupun luar. Tekanan ini mungkin dihasilkan dari sumber luar, atau penggunaan panas baik dari sumber langsung maupun tidak langsung ataupun kombinasi keduanya.*

3.36. **PWHT**. Post Weld Heat Treatment. Heat treatment carried out after welding in order to decrease residual welding stress, and/or to desired properties and/or the microstructure

PWHT*. Post Weld Heat Treatment. Heat treatment yang dilakukan setelah pengelasan untuk menurunkan sisa tegangan pengelasan, dan/ atau untuk mendapatkan karakteristik dan/ atau mikorstruktur yang diinginkan.*

3.37. **Rack-in and Rack-out**. To connect or disconnect the breakers from the buss bars

Rack-in and Rack-out. *Untuk menyambung atau memutus breaker dari buss bars*

3.38. **RT**. Radiography Test. RT is a method of non-destructive testing (NDT) used to detect discontinuities within the internal structure of welds

***RT**. Radiography Test. RT merupakan metode pengujian yang bersifat tidak merusak (NDT) untuk mendeteksi adanya ketidaksempurnaan dalam struktur sebuah pengelasan*

3.39. **Safety Critical Protection**. Devices or systems designed to protect personnel, the environment, process, equipment and properties from an undesirable event

***Pelindung Keselamatan Kritikal**. Alat atau system yang didesain untuk melindungi orang, lingkungan, proses, peralatan, dan barang-barang dari kejadian yang tidak diinginkan.*

3.40. **Safety Whip Check**. Safety cable for connecting hoses to hose across the coupling to prevent the hoses from flying around if the connection inadvertently separates

***Safety Whip Check**. Kabel safety untuk menghubungkan selang dengan selang melewati coupling untuk mencegah selang melayang tak beraturan jika sambungan tak sengaja terlepas*

3.41. **SCBA**. Self-Contain Breathing Apparatus. SCBA is a device worn by rescue workers, firefighters, and others to provide breathable air in an *immediately dangerous to life or health* atmosphere

***SCBA**. Self-Contain Breathing Apparatus. SCBA merupakan alat yang dikenakan oleh regu penolong pekerja, pemadam kebakaran, dan lainnya untuk mengalirkan udara segar yang dapat dihirup dalam atmosfer yang berbahaya untuk kehidupan dan kesehatan*

3.42. **SDS**. Safety Data Sheet. SDS is a hazard communication which includes information such as the properties of each chemical; the physical, health, and environmental hazards; protective measures; and safety precautions for handling, storing, and transporting the chemical

***SDS**. Safety Data Sheet. SDS merupakan komunikasi tanda bahaya yang memuat informasi seperti sifat bahan kimia; bahaya fisik, kesehatan, dan lingkungan; tindakan pencegahan; dan peringatan terhadap keselamatan untuk penanganan, penyimpanan, dan perpindahan bahan kimia*

3.43. **SHE**. Safety, Health, and Environment

3.44. **SIO**. Surat Ijin Operasi. SIO is a certificate which given by Republic of Indonesia Ministry of Manpower for individual as an authorized permit to operate vehicle and lifting equipment

***SIO**. Surat Ijin Operasi. SIO merupakan sertifkat yang diberikan oleh Kementrian Tenaga Kerja Republik Indonesia kepada individu sebagai ijin kewenangan untuk mengoperasikan Alat Angkat dan Alat Angkut*

3.45. **SOLAS**. Safety of Life at Sea. It is an international maritime treaty which sets minimum safety standards in the construction, equipment and operation of merchant ships

***SOLAS. Safety of Life at Sea**. Merupakan perjanjian kelautan internasional untuk menentukan standar minimum keselamatan dalam konstruksi, peralatan, dan pengoperasian kapal untuk perdagangan*

3.46. **TLD**. Thermoluminescent Dosimeter, to measures ionizing radiation exposure by measuring the intensity of visible light emitted from a crystal in the detector when the crystal is heated

***TLD**. Thermoluminescent Dosimeter, untuk mengukur paparan ionisasi radiasi melalui pengukuran intensitas cahaya tampak yang dipancarkan dari kristal di detector ketika kristal dipanaskan*

3.47. **WEA**. Work Execution Authority, authorized personnel who responsible to do job in others area as requested

***WEA.** Work Execution Authority, merupakan pihak berwenang yang bertanggungjawab untuk melakukan pekerjaan di area lain sesuai dengan permintaan*

3.48. **WMS**. Work Method Statement. WMS is a step of work which arranged systematically complete with its method as worker guideline to perform a job

***WMS**. Pernyataan Metode Kerja. WMS merupakan langkah kerja yang disusun secara sistematik lengkap dengan metode kerjanya sebagai panduan pekerja untuk melakukan pekerjaan*

4. Safety General Requirement

Persyaratan Umum Keselamatan

4.1. CAP Employee and Contractor prohibition

Larangan Karyawan CAP dan Kontraktor

4.1.1. Bring ciggerate and/ or lighter inside Red Area

Membawa rokok dan/ atau pemmantik ke dalam Red Area

4.1.2. Smoking outside Designated Area
Merokok diluar Area yang Disediakan

4.1.3. Other provision which have mentioned in Safety Induction and General Rules Procedure No. F2820-P0039

Kebijakan lain yang telah disebutkan dalam Prosedur Safety Induction and General Rules No. F2820-P0039

4.2. Contractor SHE Plan

SHE Plan Kontraktor

4.2.1. Contractor shall submit Contractor's SHE Plan according to CAP SHE Regulation to CAP as requirement to join bidding.

Kontraktor harus mengajukan Rencana SHE Kontraktor sesuai dengan Preaturan SHE CAP sebagai persyaratan mengikuti penawaran

4.2.2. Contractor shall submit Contractor's Manual after award winner and prior perform the work. Contractor manual content: SHE Policy, SHE Plan, and Attachment of Standard Operating Procedure and/ or Work Method Statement or Work Instruction

Kontraktor wajib mengajukan Manual Kontraktor setelah pengumuman pemenang dan sebelum melakukan pekerjaan. Manual Kontraktor terdiri dari Kebijakan SHE, Rencana SHE, dan lampiran Standard Operating Procedure dan/ atau Pernyataan Metode Kerja atau Instruksi Kerja.

4.3. Contractor Access Control

Kendali Akses Kontraktor

4.3.1. Work area in CAP

Area Kerja di CAP

CAP divided its area into 3 group Green Area, Blue Area, and Red Area described as below: (*Refer to Attachment 1. CAP Area Classification*)

CAP membagi area menjadi 3 grup Area Hijau, Area Biru, dan Area Merah yang dideskripsikan sebagai berikut: (Lihat Lampiran 1. Klasifikasi Area CAP)

4.3.2. ID Card (refer to Prosedur Safety Induction and General Rules F2820-P0039-04)

Kartu ID (mengacu pada Prosedur Procedure Safety Induction and General Rules F2820-P0039-04)

4.3.2.1. ID Card Type

Tipe Kartu ID

4.3.2.1.1. Visitor

Pengunjung

4.3.2.1.1.1. Is an ID Card valid for visitor in CAP. This ID Card holder can enter Red Area for plant visit only if accompanied by CAP personnel.

Merupakan kartu ID yang berlaku untuk pengunjung di CAP. Pemegang kartu ini dapat memasuki Red Area untuk kunjungan pabrik saja jika ditemani oleh karyawan CAP.

4.3.2.1.2. Temporary Contractor

Kontraktor Sementara

4.3.2.1.2.1. Is an ID Card valid for worker in CAP with work maximum duration 3 days.

Merupakan kartu ID bagi kontraktor yang masa kerja di CAP maksimal 3 hari.

4.3.2.1.3. Resident Contractor

Kontraktor Permanen

4.3.2.1.3.1. Is an ID Card valid for worker in CAP with work duration more than 3 days.

Merupakan kartu ID bagi kontraktor yang masa kerja di CAP lebih dari 3 hari.

4.3.3.1. ID card Process for Contractor

Proses kartu ID untuk Kontraktor

4.3.3.1.1. Contractor request security clearance and safety induction for his members to SHE and Security 1 day before schedule (According to SHE's schedule) by attached attendance list, copy of worker's valid ID card (KTP/SIM), and fit to work statement letter minimum from Local Government Clinic.

Kontraktor meminta security clearance dan safety induction untuk anggotanya ke SHE & Security sehari sebelum jadwal (Tergantung dengan jadwal dari SHE) dengan menyertakan daftar hadir, fotokopi kartu identitas pekerja (KTP/SIM) yang

masih berlaku dan surat keterangan sehat untuk bekerja minimal dari Puskesmas.

4.3.3.1.2. Contractor's PIC bring worker for security clearance and safety induction by bring statement letter from CAP user.

PIC kontraktor membawa pekerja untuk security clearance dan safety induction dengan membawa surat pernyataan dari user CAP.

4.3.3.1.3. ID card will be sent maximum 2 days after security clearance and pass safety induction or competency training (depends on training competency) to Department in charge of each contractor

Kartu ID akan dikirm maksimum 2 hari setelah security clearance dan lulus safety induksi atau pelatihan kompetensi (sesuai dengan kompetensi pelatihan) ke Departemen yang bertanggung jawab untuk setiap kontraktor.

4.3.3.1.4. For special skill worker as mention in 4.5.3, has to join SHE training and/or SHE competency test according to SHE schedule.

Untuk pekerja dengan keterampilan khusus yang tercantum di 4.5.3, harus mengikuti pelatihan SHE/ tes kompetensi SHE sesuai dengan jadwal SHE.

4.4. Risk Assessment

Penilaian Resiko

4.4.1. CAP user shall request to contractor for providing Work Method Statement (WMS). WMS shall be reviewed & approved by CAP user maximum one day before risk assessment (Job Hazard Analysis).

CAP user wajib meminta kontraktor untuk menyediakan Work Method Statement (WMS). WMS wajib ditinjau dan disetujui oleh CAP user maksimum satu hari sebelum risk assessment (Job Hazard Analysis)

4.4.2. Contractor shall prepare JOHAN from Work Method Statement for every work and will be reviewed together by site survey with CAP (WEA, AA, and SHE).

Kontraktor wajib menyediakan JOHAN dari Work Method Statement untuk setiap pekerjaan dan akan ditinjau bersama dengan CAP melalui observasi lapangan (WEA, AA, dan SHE).

4.4.3. WEA and or work leader shall socialize JOHAN/ JSA clearly and specific to their worker depend on job which will be performed.

WEA dan atau work leader wajib mensosialisasikan JOHAN/ JSA secara jelas dan spesifik kepada pekerjanya tergantung pada pekerjaan yang akan dilakukan.

4.4.3.1. Work leader shall pass training competency from SHE and get arm-band.

Work leader harus lolos pelatihan kompetensi dari SHE dan mendapatkan arm-band.

4.4.4. JOHAN shall be attached on Safe Work Permit Form

JOHAN wajib dilampirkan di Formulir Safe Work Permit

4.4.5. Attendance list of JOHAN/ JSA socialization shall be attached on work permit

Daftar hadir sosialisasi JOHAN/ JSA harus disertakan dalam izin kerja.

4.5. Worker

Pekerja

4.5.1. Contractor shall recruit only experienced and qualified supervisor and worker, with age range **18 – 56 years old**[1]**.** Expatriate worker shall follow CAP Human Resources Department Procedure no. HRD-DIV-0014: Administration for Expatriate Employment. For worker above 56 years old should not be allowed to perform critical work but allowed to do supervision by attach fit to work statement letter from authorized doctor and shall pass CAP health check. Work classified as critical work is CSE, scaffolder, diving, and work at height in temporary platform more than 1,8 meter.

*Kontraktor harus memperkerjakan supervisor dan pekerja yang berpengalaman dan memenuhi kualifikasi, dengan rentang usia **18 – 56 tahun.** Pekerja asing wajib mengikuti peraturan CAP Human Resources Department Procedure no. HRD-DIV-0014: Administration for Expatriate Employment**.** Untuk pekerja diatas 56 tahun tidak diizinkan untuk melakukan pekerjaan berbahaya namun dapat melakukan supervisi jika dengan melampirkan surat keterangan sehat dari dokter yang berwenang dan wajib lolos pemeriksaan kesehatan CAP. Pekerjaan yang diklasifikasikan sebagai pekerjaan berbahaya adalah CSE, scaffolder, penyelaman, dan bekerja di ketinggian lebih dari 1,8 meter di platform sementara.*

4.5.2. Worker who work in critical work such as CSE, scaffolder, diving, and work at height in temporary platform more than 1,8 meter, shall have no chronic disease such as: ***heart disease and epilepcy (shall be attached with Medical Statement from authorized doctor)*** *and pass health check prior job once a day (Body Temperature & Blood pressure).*
*Pekerja yang bekerja untuk pekerjaan berbahaya seperti CSE, scaffolder, penyelaman, dan bekerja di ketinggian lebih dari 1,8 meter di platform sementara harus tidak memiliki penyakit kronis seperti: **penyakit jantung dan epilepsi (harus disertakan dengan Surat Keterangan Sehat dari dokter yang berwenang)** dan lolos tes kesehatan sebelum bekerja sehari sekali (Suhu Tubuh & Tekanan darah)*

4.5.3. Contractor special skilled worker described as below:

Kontraktor yang termasuk dalam pekerja berketrampilan khusus dideskripsikan sebagai berikut:

4.5.3.1. Signalman
4.5.3.2. Fitter
4.5.3.3. Rigger
4.5.3.4. Operator
4.5.3.5. Welder
4.5.3.6. Fire watchman
4.5.3.7. Hole watchman
4.5.3.8. Safety Coordinator
4.5.3.9. Safety Supervisor
4.5.3.10. Safety Fieldman
4.5.3.11. Scaffold builder
4.5.3.12. Diver
4.5.3.13. Radiation activity
4.5.3.14. Water Jet Activity
4.5.3.15. Pressure Test Activity

4.5.4. Level of worker in CAP

[1] Worker's minimum age 18 refer to Ministerial Decree Manpower and Transmigration No. Kep-235/ Men/ 2003 and maximum age 56 refer to Government Regulation No. 45 Year 2015

Tingkatan pekerja di CAP

4.5.4.1. Non skill worker
4.5.4.2. Skill worker
4.5.4.3. Work leader/Foreman
4.5.4.4. Supervisor/ Engineer
4.5.4.5. Coordinator/ Superintendent/ Senior Engineer
4.5.4.6. Manager

4.5.5. Special skill worker such as safety coordinator, safety supervisor, signalman, scaffolder, welder, heavy equipment operator, confined space worker, hole watchman, and working at height in temporary platform using ladder access worker **shall have valid certificate from Republic of Indonesia Ministry of Manpower**.

Pekerja dengan ketrampilan khusus seperti safety coordinator, safety supervisor, signalman, scaffolder, welder, operator alat berat, pekerja ruang terbatas, hole watchman, dan pekerja yang bekerja di ketinggian menggunakan akses tangga harus memiliki ***sertifikat yang masih berlaku dari Kementerian Tenaga Kerja Republik Indonesia.***

4.5.5.1. Certificate requirement based on work classification is following:

Sertifikasi yang diperlukan berdasarkan klasifikasi pekerjaan adalah sebagai berikut:

No.	Worker	Certificate	Regulation	Ratio
1	Safety Coordinator	Ahli K3 Umum	Permenaker No. 02/MEN/1992 Tata Cara Penunjukan Ahli Keselamatan dan Kesehatan Kerja	Follow Table 6.2
2	Safety Supervisor	Ahli K3 Umum	Permenaker No. 02/MEN/1992 Tata Cara Penunjukan Ahli Keselamatan dan Kesehatan Kerja	Follow Table 6.2
3	Signalman	- Kartu tanda kewenangan petugas untuk penanganan pesawat angkat dan angkut - SIP (Surat Ijin Petugas)	Permenaker no. 09/MEN/VII/2010 Operator dan Petugas Pesawat Angkat dan Angkut	One person/ work group
4	Scaffolder	- Tenaga Kerja Bangunan Tinggi (TKBT) Tingkat 2	Permenaker no. 9 Tahun 2016 Keselamatan dan Kesehatan Kerja Dalam Pekerjaan Pada Ketinggian	All Scaffolder/ work group
		- Lisensi K3 Teknisi Perancah	Permenaker no. 01/MEN/1980	One person/ work group

No.	Worker	Certificate	Regulation	Ratio
5	Welder	Juru Las Kelas I/ II/ III	Permenaker 02/MEN/1982 Kwalifikasi Juru Las di Tempat Kerja	All welder
6	Heavy Equipment Operator	- Kartu tanda kewenangan seorang operator untuk mengoperasikan pesawat angkat dan angkut sesuai dengan jenis dan kualifikasinya - SIO (Surat Ijin Operasi)	Permenaker no. 09/MEN/VII/2010 Operator dan Petugas Pesawat Angkat dan Angkut	All Heavy Equipment Operator
7	Confined Space Entry (worker)	Petugas Utama Ruang Terbatas	Kepdirjen Binawasnaker No. KEP. 113/DJPPK/IX/2006 tentang Pedoman Teknis Petugas K3 Ruang terbatas (confined space)	All CSE worker
8	Confined Space Entry (Hole Watchman)	Petugas Madya Ruang Terbatas		All Hole Watchman
9	Working at height in temporary platform with ladder access (except Scaffolder)	Tenaga Kerja Bangunan Tinggi (TKBT) Tingkat 1	Permenaker no. 9 Tahun 2016 Keselamatan dan Kesehatan Kerja Dalam Pekerjaan	All worker who work on temporary platform

4.5.6. Special skill worker (4.5.3.) shall pass training to work in CAP refer to Attachment 2. Training Matrix.

Pekerja dengan kemampuan khusus (4.5.3.) harus lolos pelatihan untuk bekerja di CAP sesuai dengan Lampiran 2. Matriks Training.

4.6. Safety Sign, Tag, Signal person and signals

Safety Sign, Label, Orang pemberi sinyal dan sinyal.

4.6.1. Safety Sign

Safety Sign

4.6.1.1. Contractor shall provide safety sign for activity below :

Kontraktor wajib menyediakan safety sign untuk aktivitas berikut :

4.6.1.1.1. Hot Work Class I

Hot Work Kelas I

4.6.1.1.2. Work at Confined space

Bekerja di confined space

4.6.1.1.3. Work at height

Bekerja di atas ketinggian

4.6.1.1.4. Lifting activity

Aktivitas pengangkatan

4.6.1.1.5. Radiation work.

Pekerjaan radiasi.

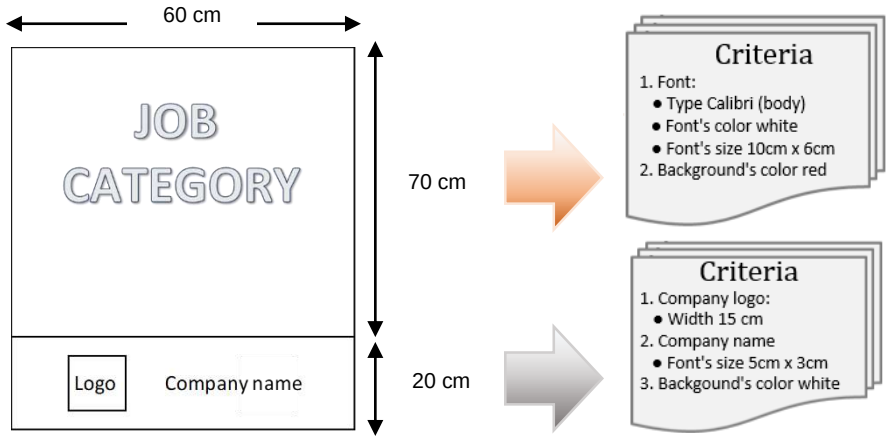


Figure 4. 1 Safety Sign Design Standard

4.6.1.2. Design

Desain

4.6.1.2.1. Color for safety sign is determined below (see fig.4.2)

Warna untuk tanda keselamatan ditentukan dibawah ini (lihat Gambar 4.2):

4.6.1.2.1.1. Red for Hot Work class I and CSE

Merah untuk Hot Work Kelas I dan CSE

4.6.1.2.1.2. Yellow for Working at Height, Lifting, Excavation, and Radiation Work.

Kuning untuk bekerja di ketinggian, pengangkatan, penggalian, dan radioaktif.

4.6.1.2.2. Size for safety sign is 60 x 90 cm (size detail in Figure 4.1)

Ukuran untuk safety sign adalah 60 x 90 m (detail ukuran di Gambar 4.1)

4.6.1.2.3. Material for safety sign made from non combustible material (metal base).

Bahan untuk safety sign terbuat dari bahan tidak mudah terbakar (basis logam).

4.6.1.2.4. Font type is Calibri, font size is 6 cm x 10 cm

Tipe huruf adalah calibri, ukuran huruf 6 cm x 10 cm

4.6.1.2.5. Company logo size is 15 cm.

Ukuran logo perusahaan adalah 15 cm .

Figure 4. 2 Safety Sign Design

4.6.1.3. Placement

Penempatan

4.6.1.3.1 Sign shall be placed on unmovable object

Tanda wajib ditempatkan di obyek tak bergerak.

4.6.1.3.2 Do not be tied with other object and seen clearly from any direction

Tidak diikat dengan obyek lain dan terlihat jelas dari beberapa arah.

4.6.1.3.3 Use familiar language (if English, it shall be accompanied with Bahasa)

Menggunakan bahasa lazim (jika bahasa Inggris wajib disertai Bahasa Indonesia)

4.6.1.3.4 Near with working area

Dekat dengan area kerja

4.6.2. Signal Person and Signals

Orang pemberi sinyal dan Sinyal

4.6.2.1. Signal person included signalman, rigger[2], and flagman

Orang pemberi sinyal merupakan signalman, rigger, dan flagman

4.6.2.2. Duty and responsibility of signalman, rigger and flagman

Peran dan tanggung jawab signalman, rigger dan flagman

Table 4. 1 Duty, Responsibility & Requirement of Signal Person

Position / *Posisi*	**Duty & Responsibility / *Peran & Tanggung jawab***	**Requirement / *Persyaratan***
Signalman	1. Ensure or verify to the rigger that the load is properly rigged up before he gives a clear signal to the crane operator to lift the load/ *Memastikan atau verifikasi kepada rigger bahwa beban telah dipasang dengan benar sebelum memberikan sinyal kepada operator crane.*	1. As certified Signalman and having certificate Rigger from Ministry of Man Power RI./ *Tersertifikat sebagai Signalman dan memiliki sertifikat Rigger dari Kementerian Tenaga Kerja RI.*

[2] Signalman and rigger in lifting activity refer to Ministerial Regulation of Manpower and Transmigration No. Per.09/MEN/VII/2010 about crane operator

Position / *Posisi*	Duty & Responsibility / *Peran & Tanggung jawab*	Requirement / *Persyaratan*
	2. Give correct and clear signals to guide the crane operator in the maneuver of the load safely to its destination. / *Memberikan sinyal yang benar dan jelas untuk memandu operator crane selama manuver beban dengan aman ke tujuan.*	2. Have 1 year experience at same position / *Memiliki pengalaman kerja 1 tahun pada posisi yang sama.* 3. Pass SHE training: / *Lulus pelatihan SHE:* a. Lifting / *Pengangkatan* b. Working at height/ *Bekerja di atas ketinggian*
Rigger	1. Check the slings to be used for slinging the loads to ensure that the slings are of good construction, suitable material, and adequate strength and free from patent defect/ *Memastikan sling yang digunakan untuk mengangkat beban dalam kondisi yang baik, material yang sesuai, dan memiliki kekuatan yang baik serta bebas dari cacat.* 2. Ensure that an adequate number of legs of the sling are used and that the slinging angle is correct so as to prevent the sling from being overloaded during the hoisting. / *Memastikan jumlah legs yang digunakan untuk sling sudah cukup dan sudut sling sesuai untuk mencegah sling kelebihan beban saat pengangkatan.* 3. Ensure that only proper lifting gears are used in conjunction with the sling. / *Memastikan hanya peralatan lifting yang layak untuk digunakan dengan sling*. 4. Ensure that the load will be lifted is secure, stable and balanced. / *Memastikan beban yang akan diangkat telah diamankan, stabil dan seimbang.* 5. Place adequate padding at the edges of the load which come in contact with the sling so as to prevent the sling from being damaged. / *Meletakkan tatakkan yang sesuai di ujung beban yang kontak langsung dengan sling untuk mencegah sling rusak.*	1. Having certificate Rigger from Ministry of Man Power RI./ *Memiliki sertifikat Rigger dari Kementrian Tenaga Kerja* 2. Have 1 year experience at same position / *Memiliki pengalaman kerja 1 tahun pada posisi yang sama.* 3. Pass SHE training : / *Lulus pelatihan SHE:* a. Lifting / *Pengangkatan* b. Working at height/ *Bekerja di atas ketinggian*

Position / *Posisi*	Duty & Responsibility / *Peran & Tanggung jawab*	Requirement / *Persyaratan*
	6. Report any defect in the lifting gear to the lifting supervisor. / *Melaporkan segala kerusakan peralatan pengangkat pada lifting supervisor.*	
Flagman	*1.* Perform traffic control at every intersection road. / *Melakukan kontrol lalu lintas di setiap persimpangan jalan.* *2.* Guide vehicle while move back ward. / *Memandu kendaraan ketika berjalan mundur.* 3. Escort heavy vehicle (except small truck) while entering to Red A area. / *Memandu kendaraan berat (kecuali truk kecil) ketika masuk ke area Red A.* 4. Escort heavy vehicle (except small truck) when entering Green and Blue Area./ *Memandu kendaraan berat (kecuali truk kecil) ketika masuk ke Area Hijau dan Biru*	

4.6.2.3. Use hand standard method if required (*Refer to Attachment 3. Hand Signal Methode Standard*).

Menggunakan standar tangan jika diperlukan (Lihat Lampiran 3. Standar Metode Sinyal Tangan)

4.6.2.4. Signal to operator shall be audible and visible.

Tanda ke operator harus dapat terdengar dan terlihat.

4.6.2.5. Operator shall be viewed clearly without obstruction by signalman.

Operator harus dapat dilihat dengan jelas tanpa gangguan oleh signalman.

4.6.2.6. Dedicated channel radio communication shall provide for signal transmission.

Saluran komunikasi radio tersendiri wajib disediakan untuk transmisi sinyal.

4.6.2.7. For maneuver heavy equipment at limited access/ obstruction view/ safety concern on Red Area B, flagman shall arrange more than 1 person.

Untuk manuver peralatan berat pada akses terbatas/ halangan penglihatan/pertimbangan safety di Area Red B, flagman wajib menggunakan lebih dari 1 orang.

4.7. Safety barrier

Safety barrier

Figure 4. 3 Safey Barricade Example on CAP

4.7.1. Usage of safety barrier

Penggunaan safety barrier

4.7.1.1. Hard Barricade

Pagar pembatas

4.7.1.1.1. Protection for any critical equipment (e.g. transmiter, existing process equipment, etc.), and fire facility (e.g. hydrant, manual call point, etc.)

Pelindung untuk peralatan yang penting (cth. transmiter, peralatan proses yang ada, dll.) dan fasilitas fire (Hidran. Titik panggilan manual, dll.)

4.7.1.1.2. Protection for any activity that directly effect to other worker such as open grating, excavation, remove fall prevention guard (e.g. handrail), and hot surface

Pelindung untuk aktivitas yang secara langsung berdampak ke pekerja lain seperti membuka grating, penggalian, menghilangan pengaman untuk ketinggian (misal: handrail), dan permukaan panas

4.7.1.2. Soft Barricade

Tali pembatas

4.7.1.2.1. Protection for any activity that indirectly effect other worker such as lifting, waterjet, pressure test, leakage, install/ dismantle scaffolding, etc.

Pelindung untuk aktivitas yang berdampak tidak langsung pada pekerja lain seperti pengangkatan, waterjet, tes tekanan, kebocoran, pemasangan/ pembongkaran scaffolding, dll.

4.7.1.2.2. Protection for temporary equipment (e.g. electrical generator, welding machine, air compressor, etc.)

Pelindung untuk peralatan yang sementara (cth. generator listrik, mesin pengelasan, kompresor udara, dll.)

5. Environmental General Requirement

Persyaratan Umum Lingkungan

5.1. Food & Baverage

Makanan & Minuman

5.1.1. Food and drinking bottle (such as energy drink bottle, mineral water, and other commercial drinking bottle) not allowed enter Red Area, except tumbler for drinking.

Makanan dan botol minuman (seperti botol minuman energi, air mineral, dan botol minum komersial lainnya) tidak diizinkan masuk Red Area, kecuali botol minum khusus untuk minum.

5.2. Spill Prevention[3]

Pencegahan Tumpahan

5.2.1. Contractor shall provide waste packaging by themself.

Kontraktor harus menyediakan kemasan limbah sendiri.

5.2.2. Contractor have to provide secondary containment as shown in Fig 5.1 for potential activities which may cause liquid chemical waste spill to prevent land pollution

Kontraktor harus menyediakan secondary containment sendiri seperti yang ada di Fig 5.1 bagi aktivitas yang berpotensi dapat menyebabkan tumpahan limbah kimia cair untuk mencegah pencemaran tanah

5.2.3. Contractor have to provide cover by themself as shown in Fig 5.2 for potential activities which may cause solid chemical waste spill to prevent land pollution
Kontraktor harus menyediakan cover sendiri seperti yang ada di Fig 5.2 bagi aktivitas yang berpotensi dapat menyebabkan tumpahan limbah kimia padat untuk mencegah pencemaran tanah

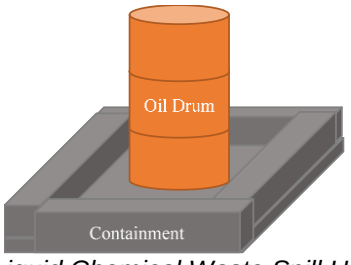


Figure 5.1 Liquid Chemical Waste Spill Handling

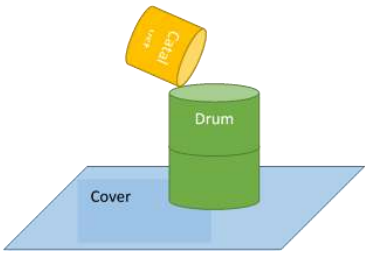


Figure 5.2 Solid Chemical Waste Spill Handling

Figure 5.3 Secondary Containment for Portable engine

5.2.4. Specification of secondary containment below shall be followed:

[3] Secondary containment refer to EPA 40 CFR part 264.175(b).

Spesifikasi secondary containment berikut wajib diikuti:

5.2.4.1. Capacity of secondary containment is 20 % from total capacity of hazardous material container

Kapasitas minimum penampung sementara adalah 20 % dari total kapasitas penampung material berbahaya

5.2.4.2. Secondary containment shall be made from material depends on chemical resistance as well as disposability of the product.

Secondary containment wajib dibuat dari bahan yang tahan akan bahan kimia yang ditampung dan mudah untuk pembuangannya.

5.2.4.3. Base part of containment shall free of cracks or gaps and able to contain leakage, spillage, and rainwater accumulation

Dasar penampung wajib bebas retakan atau rongga dan mampu untuk menampung bocoran, tumpahan dan akumulasi air hujan.

5.2.4.4. Base part shall be sloped or the containment system shall be designed to drain and remove liquids resulting from leakage, spillage, or rainwater accumulation.
Dasar harus miring atau sistem penampungan wajib di desain untuk mengalirkan dan mengeluarkan cairan hasil dari kebocoran, tumpahan atau air hujan..

5.2.4.5. Run-on into the containment system shall be prevented unless the collection system has sufficient excess capacity in addition to that required in 5.2.4.4 to contain any run-on which might enter the system.

Pengaliran ke sistem penampungan harus dicegah kecuali sistem pengumpulan memiliki kapasitas yang berlebihan yang cukup untuk keperluan di 5.2.4.4. untuk menampung aliran yang dapat masuk ke sistem.

5.2.4.6. Spilled or leaked waste and accumulated precipitation shall be removed from the sump or collection area periodically before the collection system overflow.

Tumpahan atau bocoran limbah dan akumulasi air hujan harus dikeluarkan dari bak atau area pengumpulan secara berkala sebelum penampungan meluap.

5.2.5. Specification of cover (secondary containment) shall:

Spesifikasi dari cover (secondary containment) wajib:

5.2.5.1. Used non-penetrated material

Menggunakan material yang tidak dapat bocor

5.2.6. Diesel oil fill up for machine shall follow procedure as below:

Pengisian diesel oil untuk mesin harus mengikuti prosedur seperti berikut:

5.2.6.1. Contractors should provide:

Kontraktor harus menyediakan:

5.2.6.1.1. DO drums.

Drum bahan bakar (minyak solar)

5.2.6.1.2. Jerry can.

Jerigen

5.2.6.1.3. Rotary pump/ hand pump.

Pompa rotary/ pompa tangan

5.2.6.1.4. Carrying vehicle or conventional cart (fill up at red area).

Kendaraan angkut atau troli (pengisian di red area)

5.2.6.1.5. Secondary containment as mentioned in point 5.2.4.

Secondary containment seperti yang tercantum di 5.2.4.

5.2.6.2. Diesel oil is not allowed to be stored in open area inside Red Area.

Diesel oil tidak diijinkan untuk disimpan pada tempat terbuka di dalam Red Area.

5.3. Housekeeping

Housekeeping

5.3.1. Contractor shall assign personnel to perform housekeeping after finished daily work

Kontraktor wajib menunjuk personil untuk melakukan housekeeping setelah menyelesaikan pekerjaan harian

5.3.2. Contractor shall be ensured minimum CAP standard of housekeeping as below:

Kontraktor wajib mematuhi standar minimal housekeeping CAP seperti berikut

5.3.2.1. Floor/ Ground

Lantai

5.3.2.1.1. No chemical spills, oil spills & sludge

Tidak ada tumpahan kimia, tumpahan minyak & lumpur

5.3.2.1.2. No obstacle (Tools, pipe, hose, scaffolding pipe, grating, etc)

Tidak ada penghalang (Peralatan, pipa, selang, pipa scaffolding, grating, dll)

5.3.2.1.3. No rubbish

Tidak ada sampah

5.3.2.1.4. Well drained

Drain dengan baik

5.3.2.2. Ladder & handrail

Tangga & pegangan tangan

5.3.2.2.1. Free of grease/ oil

Tidak terdapat pelumas/ minyak

5.3.2.2.2. In safe position when in use/ not use

Dalam posisi aman saat sedang atau tidak digunakan

5.3.2.3. Movable Ladder

Tangga bergerak

5.3.2.3.1. Movable ladder shall be locked either when in use or not in use

Tangga yang dapat dipindahkan wajib dikunci baik ketika digunakan maupun tidak digunakan

5.3.2.4. Portable tools

Peralatan portabel

5.3.2.4.1. Stored properly when in use/not use

Disimpan dengan baik saat sedang atau tidak digunakan

5.3.2.5. Electrical cable

Kabel listrik

5.3.2.5.1. Cable cord arranged properly

Kabel tersusun dengan baik

5.3.2.6. Equipment

Peralatan

5.3.2.6.1. No chemical spill, oil spill & sludge

Tidak ada tumpahan kimia, tumpahan minyak & lumpur

5.3.2.6.2. No obstruction (hand gloves, dust cloth, tools, etc.)

Tidak ada penghalang (sarung tangan, debu, alat, dll.)

5.4. Waste Management

Pengolahan Limbah

5.4.1. Hazardous waste management should refer to Indonesia regulation[4].

Pengolahan limbah B3 harus mengikuti peraturan Indonesia.

5.4.2. Waste management shall refer to Attachment 4 Waste Management CAP.

Pengolahan limbah harus mengikuti Lampiran 4 Waste Management CAP.

5.4.3. Waste producer responsible to do waste segregation and transport waste from work area to Waste Handling Temporary on daily basis.

Penghasil limbah bertanggung jawab untuk melakukan segregasi limbah dan pengangkutan limbah dari area kerja ke Tempat Pembuangan Sementara (TPS) setiap hari.

5.4.4. SHE will collect industrial waste from dedicated Waste Handling Temporary in Red Area

SHE akan mengambil limbah industri dari lokasi Tempat Pembuangan Sementara (TPS)

6. Structure of Contractor Safety Officer

Struktur Safety Officer Kontraktor

6.1. Duty and Responsibility of Cntractor Safety Officer

[4] Hazardous waste management refer to Government Regulation No. 101 Year 2014

Table 6.1 Duty & Responsibility as Contractor Safety Officer

Position / *Posisi*	**Duty & Responsibility / *Peran & Tanggung jawab***	**Requirement / *Persyaratan***
Safety Fieldman	1. Attend tool box meeting to ensure that all members of work understand in their work scope and aware of relevant process hazard information for the area in which they are working / *Menghadiri tool box meeting untuk memastikan semua pekerja memahami pekerjaannya dan sadar akan informasi bahaya di area mereka kerja.* 2. Responsible for providing safety induction of new member contractor under his responsibility and submit internal safety induction evidence to CAP SHE Division (only for company who supply worker more than 10 people). / *Bertanggung jawab untuk memberikan safety induction kepada anggota kontraktor yang berada dalam tanggung jawabnya dan menyerahkan bukti safety induction internal kepada CAP SHE Division (hanya untuk perusahaan yang menyediakan pekerja lebih dari 10 orang).* 3. Responsible for the day to day inspections, ensuring maintenance of safety equipment, safety observations, behavior based safety program. /*Bertanggung jawab untuk inspeksi setiap harinya, memastikan perawatan dari peralatan safety, melakukan observasi safety, dan program perilaku berdasarkan safety (Behavior Based Safety).* 4. Safety fieldman shall be a mentor for all other crew members to promote a safety culture that empowers each individual to authorize for stopping the work in term of building a safety first culture. / *Safety fieldman harus menjadi mentor bagi pekerja lainnya untuk mempromosikan budaya safety yang mendorong tiap individu agar berwenang untuk menghentikan*	1. Minimum 1 year experience at same position / *Minimal memiliki 1 tahun pengalaman pada posisi yang sama.* 2. Having knowledge basic safety and fire, basic first aid, basic rescue. / *Memilkii pengetahuan dasar keselamatan dan kebakaran, dasar P3K, dasar penyelamatan.* 3. Pass Training from CAP:/ *Lulus pelatihan dari CAP:* a. Work Permit/ *Izin kerja* b. Hot Work Activity/*Aktivitas hot work* *c.* Lifting Activity/*Aktivitas pengangkatan* *d.* Working at Height/*Bekerja di ketinggian* *e.* Confined Space / *Confined space* f. Basic Fire/*Dasar pena-nganan kebakaran* g. Scaffolding & Ladder/ *Scaffolding & tangga* h. Basic Electrical/ *Dasar listrik* i. First Aid/ *Pertolongan pertama* j. Radiation avtivity/ *Aktivitas radiasi*

	pekerjaan dalam membangun budaya safety first. 5. Safety fieldman shall comply with all CAP or Contractor SHE Policies and Procedures to conduct inspection to ensure proper utilization of safeguarding or Personal Protetive Equipment (PPE) as well as in good condition/ *Safety fieldman wajib mengikuti Prosedur dan Kebijakan SHE Kontraktor dan CAP untuk untuk melakukan inspeksi untuk memastikan penggunaan safeguarding atau Alat Pelindung Diri (APD) yang layak dan serta dalam kondisi baik.* 6. Control and observe safety behavior of workers, wearing of PPE as defined in the work permit./ *Mengontrol dan mengobservasi perilaku safety pekerja, menggunakan APD sesuai dengan izin kerja.* 7. Monitor and report all changes in condition that may affect to the safety of the worker or plant./ *Memantau dan melaporkan semua perubahan kondisi yang bisa berdampak terhadap keselamatan pekerja atau plant.* 8. In emergency case help his/her crew members in his/her area to go to assembly point./ *Pada kondisi darurat, memandu orang yang bekerja di areanya menuju assembly point.* 9. On break time or emergency case ensure internal combustion engine is switch off. / *Pada saat istirahat atau keadaan darurat, memastikan internal combustion engine dimatikan.* 10. Report to safety supervisor if he/she has to leave the work site/ *Melaporkan ke safety supervisor jika ia harus meninggalkan lapangan.*	
Safety Supervisor	1. Supervise work of safety fieldman./ *Mengawasi pekerjaan safety fieldman.*	1. Minimum experience 2 years at same position / *Memiliki*

	2. Make report of safety progress refer to point 26 (Safety Report)/ *Membuat laporan progres safety sesuai dengan poin 26 (Safety Report).* 3. Issue investigation report if any/ *Membuat laporan investigasi jika ada.* 4. Counting number of his crew worker in emergency case./ *Menghitung jumlah pekerjanya ketika keadaan darurat.* 5. Report to safety coordinator if he/she has to leave the work site./*Melaporkan ke safety coordinator jika harus meninggalkan lapangan*.	*pengalaman kerja minimal 2 tahun pada posisi yang sama*. 2. Having certificate general safety expert from Ministry of Man Power RI / *Memiliki sertifikat ahli K3 umum dari Kementerian Tenaga Kerja RI*. 3. Pass Training from CAP: / *Lulus pelatihan dari CAP:* a. Work Permit/ *Izin kerja* b. Hot Work Activity/*Aktivitas hot work* *c.* Lifting Activity/*Aktivitas pengangkatan* *d.* Working at Height/*Bekerja di ketinggian* *e.* Confined Space / *Confined space* f. Basic Fire/*Dasar penanganan kebakaran* g. Scaffolding & Ladder/ *Scaffolding & tangga* h. Basic Electrical/ *Dasar listrik* i. First Aid/ *Pertolongan pertama* j. Radiation avtivity/ *Aktivitas radiasi*
Safety Coordinator	1. Supervise work of safety supervisor. / *Supervisi pekerjaan dari safety supervisor* 2. Coordinate with CAP SHE team./ *Berkoordinasi dengan tim SHE CAP.* 3. Report to manager contractor if he/she has to leave the work site. / *Melaporkan ke manajer kontraktor jika ia harus meninggalkan pekerjaan.*	1. Minimum has Diploma education background. / *Memiliki pendidikan minimal Diploma* 2. Minimum experience 3 years experiences at same position/ *Memiliki pengalaman kerja 3 tahun di posisi yang sama.* 3. Having certificate general safety expert from Ministry of Man Power RI. / *Memiliki sertifikat ahli K3 umum dari Kementerian Tenaga Kerja RI.* *4.* Pass Training from CAP:/ *Lulus pelatihan dari CAP:* a. Work Permit/ *Izin kerja* b. Hot Work Activity/*Aktivitas hot work* *c.* Lifting Activity/*Aktivitas pengangkatan* *d.* Working at Height/*Bekerja di ketinggian* *e.* Confined Space / *Confined space*

		f. Basic Fire/*Dasar pena-nganan kebakaran* g. Scaffolding & Ladder/ *Scaffolding & tangga* h. Basic Electrical/ *Dasar listrik* i. First Aid/ *Pertolongan pertama* j. Radiation avtivity/ *Aktivitas radiasi*

6.2. Number of Contractor's Safety Officer

Jumlah Kontraktor Safety Officer

6.2.1. Vendor or contractor with total employee in project:

Vendor atau mitra kerja dengan total karyawan selama proyek:

Table 6. 2 Minimum Number of Contractor Safety Officer

Employee	Position		
	Safety Fieldman	Safety supervisor	Safety Coordinator
<20	-	-	1
20 – 50	1	-	1
51 – 100	2	-	1
101 - 125	3	1	1
126 – 150	4	1	1
151 – 175	5	1	1

6.2.2. Total employees 0 - 125, contractor manager can be safety coordinator.

Total karyawan 0 - 125, manager kontraktor dapat menjadi safety coordinator.

6.2.3. Total employees 20 - 50 should provide 1 safety field man and 1 safety coordinator.

Total karyawan 20 - 50 harus menyediakan 1 safety field man dan 1 safety coordinator.

6.2.4. Total employees 51 - 100 should provide 2 safety field man dan 1 safety coordinator.

Total karyawan 51 - 100 harus menyediakan 2 safety field man dan 1 safety coordinator.

6.2.5. Total employees 101 - 125 should provide 3 safety field man, 1 safety officer, dan 1 safety coordinator.

Total karyawan 101 - 125 harus menyediakan 3 safety field man, 1 safety supervisor, dan 1 safety coordinator.

6.2.6. Total employee more than 100 should provide 1 safety supervisor and safety field man 2 + 1 for every additional 25 worker

Total karyawan lebih dari 100 harus menyediakan 1 safety supervisor dan safety field man 2 + 1 untuk setiap penambahan 25 pekerja.

6.2.7. Total employee more than 125 should provide 1 safety coordinator.

Total karyawan lebih dari 125 harus menyediakan 1 safety coordinator.

7. Personal Protective Equipment

Alat Pelindung Diri

7.1. Basic Personal Protective Equipment for Worker

Alat Pelindung Diri Dasar untuk Pekerja

7.1.1. Safety helmet (Type 1 Class E of ANSI Z89.1 or equal) + chin strap (*Refer to Attachment 6 Worker Identification*).

Helm safety (Tipe 1 Kelas E ANSI Z89.1 atau setara) + tali dagu (Lihat Lampiran 6. Worker Identification).

7.1.1.1. Company logo sticker shall be adhered in safety helmet

Stiker logo perusahaan harus ditempelkan di safety helmet

7.1.2. Only approved safety glasses meet the safety standard (ANSI Z87.1 or equal) are approved for eye protection. Tinted safety glass are not allowed to use in CAP plant. Photogray glasses is not classified as tinted glasses.

Hanya kacamata safety yang sesuai dengan standard keselamatan (ANSI Z87.1 atau setara) yang disetujui untuk proteksi mata. Kacamata safety yang berwarna tidak diijinkan digunakan di CAP Plant. Kacamata photogray tidak diklasifikasikan sebagai kacamata berwarna.

7.1.3. Prescription glasses usage shall be covered with Fit-Over Prescription Safety Glasses

Penggunaan kacamata prescription harus dilindungi dengan kacamata safety yang dapat dipasangkan dengan kacamata prescription

7.1.4. Safety shoes/ rubber boots (ASTM F2413-11 or equal).

Sepatu safety/ bot karet (ASTM F2413-11 atau setara).

7.1.5. Long sleeves clothing and trouser.

Pakaian lengan panjang dan celana panjang.

7.2. Special PPE

PPE khusus

7.2.1. Worker who perform breaker rack-in and rack-out activity at 6 KV current and above shall use Arc Flash Protecting Clothing because there always a chance of an arc flash (electrical explosion) to occur[5].

Pekerja yang melakukan kegiatan rack-in dan rack-out breaker arus 6 KV ke atas wajib menggunakan Pakaian Pelindung Arch Flash karena selalu ada kemungkinan terjadinya arc flash (ledakan listrik).

7.2.2. Other PPE as mentioned in Risk Assessment prior work

APD lain yang disebutkan dalam Risk Assessment sebelum bekerja

7.3. Contractor shall provide proper Basic PPE and Special PPE as mentioned in Risk Assessment for their worker (Attachment 5. Special PPE Matrix)

Kontraktor wajib menyediakan APD dasar dan spesial APD sesuai dengan Penilaian resiko untuk pekerjanya. (Attachment 5. Special PPE Matrix)

[5] OSHA 29 CFR 1910.335(a)(1)(i) Flame Resistant Clothing

8. Tools and Equipment Specification

Spesifikasi Alat dan Peralatan

8.1. Electrical Equipment

Peralatan Elektrik

8.1.1. Motor installation, lighting installation, and junction box shall have minimum requirement IP 44 certified

Instalasi motor, instalasi penerangan, dan junction box wajib memiliki minimum persyaratan tersertifikasi IP 44

8.1.2. Lighting for Confined Space shall use max. 24 V DC.

Penerangan Confined Space wajib menggunakan maksimum 24 V DC.

8.1.3. Electric Current 220 V shall be protected by ELCB with maximum current 30 mA for human protection[6].

Arus listrik 220 V wajib menggunakan proteksi ELCB dengan arus maksimal 30 mA untuk perlindungan terhadap manusia.

8.1.4. Electrical cable specification for temporary facility (outdoor facility):

Spesifikasi kabel listrik untuk fasilitas sementara (fasilitas outdoor):

8.1.4.1. Cable from Panel Distribution Box or ELCB Panel shall be equipped with gland cabel at outlet panel

Kabel dari *Panel Distribution Box atau Panel ELCB wajib dilengkapi dengan kabel gland di keluaran panel*

8.1.4.2. Electric cable for 220 V shall follow minimum requirement below:

Kabel elektrik untuk 220 V wajib memenuhi persyaratan minimum dibawah ini:

8.1.4.2.1. Minimum made from Al/ Cu/ PVC/ PVC (outdoor type)

Minimal dibuat dari Al/ Cu/ PVC/ PVC (Outdoor type).

8.1.4.2.2. Cable size from receptacle or cable extension to tools shall follow the manufacture capacity of tools.

Ukuran kabel dari stop kontak atau kabel rol menuju peralatan wajib mengikuti kapasitas manufaktur dari alat.

8.1.4.2.3. Cable size from Panel Distribution Box or ELCB Panel (for 220 V) shall have minimum diameter 2.5 mm with maximum capacity 21 Ampere.

Ukuran kabel dari Panel Distribution Box atau Panel ELCB (untuk 220 V) wajib memiliki diameter minimum 2.5 mm dengan kapasitas maksimal 21 Ampere.

8.1.4.2.4. Maximum outlet from cable extention are 4 outlets (capacity per outlet is maximum 900 Watt).

Outlet maksimal dari kabel ekstensi adalah 4 outlet (kapasitas per outlet adalah maksimal 900 Watt).

[6] International Electrotechnical Commission (IEC) 60479-1 (2016): Protection Against Electric Shock

8.1.4.2.5. All plug shall have minimum requirement 16 Ampere and IP 44 except electrical power tools 220 V (for electrical power tool follow manufacturing standard).

Semua plug wajib memiliki persyaratan minimum 16 Ampere dan IP 44 kecuali power tools elektrikal 220 V (untuk power tool elektrikal mengikut standard manufaktur)

8.1.4.2.6. Receptacle shall have minimum requirement IP 44

Receptacle wajib memiliki minimum requirement IP 44

8.1.4.3. Electric cable for 380 V or more shall follow minimum requirement below:

Kabel elektrik untuk 380 V atau lebih wajib memenuhi persyaratan minimum dibawah ini:

8.1.4.3.1. Made from Al/ Cu/ PVC/ Armour/ PVC (outdoor type). For horizontal position, it shall be covered by metal cover for protecting from physical damage (see point 8.1.5).

Dibuat dari Al/ Cu/ PVC/ Armour/ PVC (tipe outdoor). Untuk posisi horizontal, kabel wajib dilindungi dengan metal cover untuk melindungi dari kerusakan fisik (lihat poin 8.1.5).

8.1.4.3.2. Or made from Cu/ PVC/ Sheeting/ PVC (outdoor type) without armour. It shall be protected by sheeting insulation such as additional PVC conduit for vertical position. For horizontal position, it shall be covered for protecting from physical damage (see point 8.1.5)

Atau dibuat dari Cu/ PVC/ Sheeting/ PVC (tipe outdoor) tanpa armor. Jenis ini wajib dilindungi oleh sheeting insulation seperti penambahan PVC conduit untuk posisi vertical. Untuk posisi horizontal, kabel wajib dilindungi dengan metal cover untuk melindungi dari kerusakan fisik (lihat poin 8.1.5)

8.1.4.3.3. Or made from Cu/ PVC/ PVC (outdoor type) without armour and sheeting insulation. It shall be protected with PVC conduit and/ or isolator if contacts with metal for vertical position. For horizontal position, it shall be protected with PVC conduit and covered for protecting from physical damage (see point 8.1.5).

Atau dibuat dari Cu/ PVC/ PVC (tipe outdoor) tanpa armour dan sheeting insulation. Jenis ini wajib dilindungi oleh PVC conduit dan/ atau isolator jika bersentuhan dengan besi untuk posisi vertical. Untuk posisi horizontal, kabel wajib dilindungi dengan PVC conduit dan dilindungi untuk melindungi dari kerusakan fisik (lihat poin 8.1.5)

8.1.4.3.4. Megger or insulation test shall be conducted before cable utilizing

Tes insulasi atau megger wajib dilakukan sebelum penggunaan kabel

8.1.4.3.5. Cable without armor does not need to conduct megger test (visual test only)

Kabel tanpa armor tidak perlu untuk dilakukan tes megger (hanya tes visual)

8.1.4.4. Cable size based on rating/ nameplate of cable and its value shall be higher than the value of the load current flowing in cable.

Ukuran kabel harus didasarkan sesuai dengan rating/ plat nama kabel dan nilainya harus lebih besar dari nilai arus beban yang mengalir pada kabel.

8.1.5. Cable crossing on road shall be covered with metal cover, sharp edges protection, and clamp to lock cable inside metal cover.

Kabel yang melintas di jalan harus dilindungi dengan cover logam, perlindungan sudut tajam, dan memiliki clamp untuk mengunci kabel di dalam cover logam.

Figure 8. 1 Example of Metal Cover & Hanger for Electric Cable

8.1.6. Cable shall connect with junction box/ terminal cable, and not cable to cable.

Kabel wajib terhubung menggunakan junction box/ kabel terminal, dan bukan kabel dengan kabel.

8.1.7. Electrical extension cable shall be hanged to avoid physical damage.

Kabel listrik ekstensi wajib digantung untuk menghindari kerusakan fisik.

8.1.8. Battery for radio communication shall comply with IS, FM, or Underwriter Lab (UL) code

Baterai untuk komunikasi radio harus mengikuti kode IS, FM, atau Underwriter Lab (UL) code

8.1.9. CAP equipment such as panel, pump body, compressor, junction box, and ladder could not allow as grounding facility to tie in.

Peralatan CAP seperti panel, badan pompa, kompresor, junction box, dan tangga tidak dapat digunakan sebagai fasilitas penempatan grounding.

8.1.10. Temporary electrical panel for power distribution shall have proper grounding with maximum resistance is 5 ohm or tie in to CAP Grounding Point (Refer to Attachment 7. CAP Grounding Point Map), ELCB (maximum current is 30 mA), IP 44, and electric hazardous sign.

Panel listrik sementara yang digunakan untuk distribusi listrik wajib menggunakan grounding dengan maksimum hambatan 5 ohm atau diikat ke CAP Grounding Point (Sesuai dengan Lampiran 7. CAP Grounding Point Map), ELCB (maksimum arus 30 mA), IP 44, dan lambang bahaya listrik.

8.2. Mechanical Equipment

Peralatan mekanik

8.2.1. Equipment classified as mechanical equipment shall pass CAP tools and equipment inspection refer to Attachment 8. Tools & Inspection Procedure
Peralatan yang termasuk sebagai peralatan mekanik harus lulus Inspeksi alat dan peralatan CAP lihat Lampiran 8. Tools & Inspection Procedure.

8.2.2. Any Distribution Manifold which will be utilized in hazardous Area shall be equipped with pressure relief devices either Pressure Safety Valve (for gas phase) or Pressure Relief Valve (for liquid phase). The set pressure marked on the device shall not exceed the maximum allowable working pressure of the vessel[7].

Setiap Manifold Distribusi yang memasuki area berbahaya wajib dilengkapi dengan alat pressure relief baik Pressure Safety Valve (untuk fase gas) atau Pressure Relief Valve (untuk fase cair). Set tekanan yang ditandai di alat tidak melebihi tekanan kerja maksimal yang diijinkan dari bejana tekan.

8.2.3. Abrasive wheel shall follow requirement below[8]:

Batu gerinda wajib mengikuti persyaratan berikut:

8.2.3.1. Abrasive wheel maximum speed specification shall be higher than grinding machine maximum speed

Spesifikasi maksimum kecepatan batu gerinda wajib lebih tinggi daripada maksimum kecepatan dari mesin gerinda

8.2.3.2. Abrasive wheel which has been expired is prohibited to be utilized

Batu gerinda yang telah kadaluarsa dilarang untuk digunakan

8.3. Handtools

Alat perkakas

8.3.1. Handtools especially hammer when used in hazardous area shall be made from non-spark material.

Alat perkakas terutama palu saat digunakan di hazardous area harus terbuat dari material yang tidak menimbulkan percikan.

8.3.2. If handling directly to flammable material all handtools shall be made from non spark material.

Jika material bersentuhan langsung dengan material mudah terbakar semua alat perkakas harus terbuat dari bahan tidak menimbulkan percikan

8.3.3. Keep tools in good condition at all times.

Simpan peralatan dalam kondisi baik pada setiap saat.

8.3.4. Inspect tools for defects before use. Replace or repair defective tools.

Inspeksi kecacatan alat sebelum digunakan. Ganti atau perbaiki alat yang rusak.

8.3.5. Keep cutting tools sharp and cover sharp edges with suitable covering to protect the tool and to prevent injuries from unintended contact.

Simpan alat potong yang tajam dan lindungi bagian tajam dengan penutup yang sesuai untuk melindungi alat dan mencegah cedera dari kontak yang tidak sengaja.

8.3.6. Replace cracked, splintered, or broken handles on hammers, screwdrivers, or sledges.

Ganti pegangan pada palu, obeng atau kereta yang telah retak pecah atau rusak.

[7] ASME Boiler and Pressure Vessel Section VIII Division 1: Rules for Construction of Pressure Vessels
[8] Abrasive Wheel Manufacturing Standard

8.3.7. Ensure handles of tools like hammers fit tightly into head of tool.

Pastikan pegangan alat seperti palu terpasang erat ke kepala alat.

8.3.8. Replace worn jaws on wrenches, pipe tools and pliers.

Ganti rahang yang sudah aus pada kunci pas, alat pipa dan tang.

8.3.9. Redress burred or mushroomed heads of striking tools using hand file and whetstone only.

Perbaiki alat pukul yang sudah kasar atau ujungnya menyerupai jamur hanya dengan alat kikir maupun batu asah.

8.3.10. Carry tools with a sturdy tool box to and from the worksite.

Bawa alat dengan menggunakan kotak alat ke dan dari tempat kerja.

8.3.11. Do not carry tools using hand while climbing the ladder, on a structure, or when doing any hazardous work. If working on a ladder or scaffold, tools should be raised and lowered using a bucket and hand line.

Dilarang membawa alat dengan tangan sambil menaiki tangga, mendaki strukutur, atau melakukan pekerjaan berbahaya, Jika bekerja di tangga atau scaffold, alat harus dinaikkan dan diturunkan menggunakan wadah dan tali.

8.4. Scaffolding (refer to Scaffolding and Lifting Gear Procedure no F2820-P0077)

Scaffolding (refer to Scaffolding and Lifting Gear Procedure no F2820-P0077)

8.4.1. Worker

Pekerja

8.4.1.1. Leader of scaffolding group shall **certified from Ministry of Man Power RI[9].**

*Pimpinan regu scaffolding harus memiliki **sertifikat dari Kementerian Tenaga Kerja RI.***

8.4.1.2. One of scaffolding group has minimum 1 scaffolding certified person as leader.

Satu grup scaffolding memiliki minimum 1 orang yang bersertifikat scaffolding sebagai ketua.

8.4.1.3. Scaffolder and scaffolds helper shall use scaffold armband provided by themself. (Refer to Attachment 6 Worker Identification)

Scaffolder dan scaffolds helper harus menggunakan armband yang disediakan sendiri (Lihat Lampiran 6 Worker Identification)

8.4.1.4. Only qualified worker shall install and dismantle scaffolding (Refer to point 4.5).

Hanya pekerja yang berkompeten yang dapat mendirikan dan membongkar scaffolding (Lihat poin 4.5)

8.4.2. Personal protective equipment for scaffolding work as mention in JOHAN

Alat pelindung diri untuk pekerjaan scaffolding sesuai dengan JOHAN

8.4.2.1. Used basic PPE refer to point 7.1

Menggunakan APD dasar sesuai dengan poin 7.1

[9] Scaffolder requirement refer to Ministry Regulation on Manpower and Transmigration No. Per.01/MEN/1980

8.4.2.2. Body protection : Scaffolding activity may cause worker fall from high elevation workplace

Pelindung badan : Aktivitas scaffolding dapat menyebabkan pekerja jatuh dari lokasi kerja di ketinggian

8.4.2.2.1. Full body harness with double lanyard. It shall be inspected by SHE and follow Procedure F2820-P0114 Full Safety Body Harness, Raincoat, and HT for Full Body Harness Checklist (attachment-15)

Full body harness dengan double lanyard. Full body harness harus diinspeksi oleh SHE dan mengikuti Prosedur F2820-P0114 Full Safety Body Harness, Raincoat, dan HT untuk Checklist Full Body Harness (lampiran-15).

8.4.2.2.2. Full body harness shall have tag "PASSED" and inspected minimum every 6 months.

Full body harness harus mempunyai tag "PASSED" dan diinspeksi minimum setiap 6 bulan.

8.4.2.3. Hand protection

Pelindung tangan

8.4.2.3.1. Cotton glove

Sarung tangan katun

8.4.2.4. Other PPE as required in JOHAN

APD lain yang tercantum dalam JOHAN

8.4.3. Method of work, equipment and condition

Metode kerja, peralatan dan kondisi

8.4.3.1. Scaffolding min. standard within **JIS Standard**[10].

*Standar minimal scaffolding sesuai **Standar JIS.***

8.4.3.2. Wrench or handtools shall be tied on scaffolder hand/wrist used rope.

Kunci inggris atau peralatan tangan yang lain harus diikatkan ke tangan scaffolder /pergelangan tangan menggunakan tali.

8.4.3.3. During installation and dismantle of scaffolding, worker shall used rope/bag/pulley/other equipment for transfer scaffolding material.

Selama pemasangan dan pembongkaran scaffolding, pekerja harus menggunakan tali / tas / katrol / peralatan lain untuk memindahkan material scaffolding.

8.4.3.4. Worker is prohibited to step on insulation

Pekerja dilarang berpijak diatas insulasi

8.4.3.5. Pipeline, pipe rack, pipe sleeper which will be crossed during activity shall be installed with guard.

Pipeline, pipe rack, pipe sleeper yang akan dilewati selama aktivitas wajib dipasang pengaman.

[10] JIS Standard refer to JIS: SS 311:2005 - Specification for Steel tubes & Fittings used in tabular Scaffoldings

8.4.3.6. Walkway/ platform for scaffolding minimum 2 planks (44 cm).

Walkway/ platform untuk scaffolding minimal 2 papan (44 cm).

8.4.3.7. When installation and dismantle of scaffolding shall install red tag.

Ketika pendirian dan pembongkaran scaffolding wajib dipasang label merah.

8.4.3.8. Scaffolding shall be inspected by registered inspector by CAP SHE before used.

Scaffolding harus diinspeksi oleh inspektor yang teregistrasi oleh SHE CAP sebelum digunakan.

8.4.3.9. Only scaffolding with green tag permitted to use.

Hanya scaffolding dengan label hijau diijinkan untuk digunakan.

8.4.3.10. Scaffolding will be inspected by SHE, every modification not comply with CAP procedure shall change status of scaffolding to "Not Safe For Use".
Scaffolding akan diinspeksi oleh SHE, semua modifikasi yang tidak sesuai dengan prosedur CAP akan diganti status menjadi "Tidak Aman Digunakan".

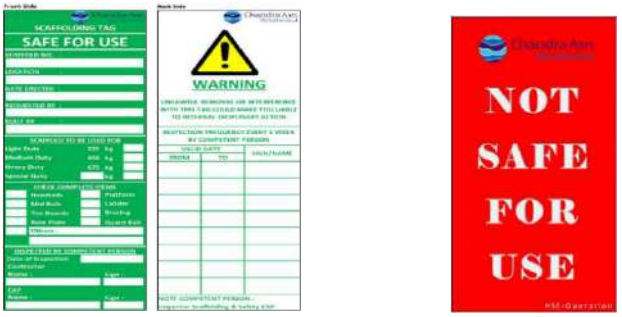


Figure 8. 2 Scaffold Safe For Use & Not Safe For Use tag

8.4.3.11. Access ladder shall provide for each scaffolding. Access ladder shall use portable ladder either fabricated or manufacturing ladder with following requirement (OSHA 1926.451 (e) Access of Subpart L Scaffold):

Akses tangga wajib disediakan untuk setiap perancah. Akses tangga harus menggunakan tangga portable baik fabrikasi maupun pabrikan dengan mengikuti persyaratan dibawah ini (OSHA 1926.451 (e) Access of Subpart L Scaffold):

8.4.3.11.1. Hook on scaffolding.

Dikaitkan pada perancah.

8.4.3.11.2. Have a minimum rung length of 29 cm.

Mempunyai panjang anak tangga minimal 29 cm.

8.4.3.11.3. Ladder rungs shall be spaced not less than 25 cm and, nor more than 36 cm.

Anak tangga harus berjarak tidak kurang dari 25 cm dan tidak lebih dari 36 cm.

8.4.3.11.4. Every 4 m or 2 lift platform of ladder shall provide rest platform.
Setiap 4 m atau 2 lift platform tangga wajib menyediakan platform untuk istirahat.

8.4.3.11.5. Portable ladder dutty classification shall follow requirement at point 8.5.2.

Klasifikasi beban tangga portable harus mengikuti persyaratan pada poin 8.5.2.

8.4.3.12. Extend tube scaffolding shall use pin connection.

Pipa pemanjangan scaffolding wajib memakai pin connection.

8.4.3.13. Bend, crack, oil/chemical sludge on tube, prohibit use as scaffolding materials.

Pipa yang melengkung, retakan, endapan minyak/kimia pada pipa, dilarang dipergunakan sebagai material scaffolding.

8.4.3.14. Scaffolding prohibit to be installed near excavation area with min. distance 1 m.

Scaffolding dilarang dipasang dekat area penggalian min. jarak 1 m.

8.4.3.15. Additional access must be provided for scaffolding minimum one for each length of 24 meters of scaffolding platform

Akses tambahan harus disediakan untuk scaffolding minimal satu untuk setiap panjang 24 meter dari platform scaffolding.

8.4.3.16. Scaffolding in utilize shall not overload type of scaffolding as below.

Scaffolding yang digunakan tidak boleh melebihi beban tipe scaffolding seperti berikut.

Table 8. 1 Type of Scaffolding

Type	Safe Working Load (Kg)
Ligh duty	225
Medium duty	450
Heavy Duty	675
Special Duty	Based on calculation by Scaffolding Engineer

8.4.3.17. Prohibited to storage material on platform scaffolding.

Dilarang menyimpan bahan pada platform scaffolding.

8.4.3.18. Overhead protection shall be provided when overhead hazard will expose to worker.

Pelindung atas wajib disediakan ketika bahaya diatas dapat mengenai pekerja.

8.4.3.19. Boxes, kegs or unstable object shall not use as platform or support of scaffolding.

Kotak, tong atau obyek yang tidak stabil tidak dapat digunakan sebagai platform atau dasar pijakan scaffolding.

8.4.3.20. Reachable (up to 2 meters from working platform) end of pipe scaffolding part shall be covered with cap

Bagian akhir pipa yang dapat dijangkau (hingga ketinggian 2 meter dari platform kerja) harus dilindungi dengan cap.

8.4.3.21. Hanging scaffolding on pipe rack and located above the road shall be equipped with maximum height clearance sign.

Perancah yang menggantung di pipe rack dan berlokasi diatas jalan harus dilengkapi dengan tanda jarak ketinggian maksimum.

8.5. Ladder (refer to Attachment 9. Fall and Prevention Procedure)

Tangga (lihat Lampiran 9. Fall and Prevention Procedure)

8.5.1. Maximum length of portable ladder

Panjang maksimum tangga portabel.

8.5.1.1 Step ladder 20 ft (6.2 m)

Tangga 20 ft (6.2 m)

8.5.1.2 Two section extension 48 ft (14.88 m)

Dua seksi ekstensi 48 ft (14.88 m)

8.5.1.3 Cleat 30 ft (9.3m)

Cleat 30 ft (9.3m)

8.5.1.4 Single 30 ft (9.3m)

Tunggal 30 ft (9.3m)

8.5.2. Portable ladder duty classification

Klasifikasi tugas tangga portabel

Table 8. 2 Portabel Ladder Classification

Duty rating	Ladder type	Working Load (pounds)
Special	1AA	375
Extra heavy	1A	300
Heavy	1	250
Medium	2	225
Light	3	200

8.5.3. Ladder shall be inspected by ACI before use

Tangga wajib diinspeksi oleh ACI sebelum digunakan.

8.5.4. Movable ladder shall be locked on its wheel either when in use or not in use

Tangga bergerak wajib dikunci pada rodanya baik ketika digunakan maupun saat tidak digunakan

8.5.4.1. Worker shall step down from the ladder before moved in any direction

Pekerja wajib turun dari tangga sebelum digerakkan ke berbagai arah

8.5.5. Metal ladder shall not be exposed to acid or alkali substances

Tangga dari logam tidak boleh terkena zat asam atau basa.

8.5.6. All ladders shall be free of oil, grease or slippery materials.

Semua tangga harus bebas dari minyak, pelumas atau material yang licin.

8.5.7. Ladder is prohibited to be used as a brace, skid, guy or gin pole, gang-way.

Tangga dilarang digunakan sebagai penahan, skid, sopi, gang-way.

8.5.8. Improper ladder such as broken, bent or missing steps, rungs, safety feet, side rails is not allowed to be utilized.

Tangga yang tidak layak seperti rusak, bengkok, atau hilang anak tangga, safety feet, dan susuran samping tangga tidak diijinkan untuk digunakan.

8.5.9. Do not use metal ladder materials when exposed of electrical hazards.

Tidak boleh menggunakan tangga dari bahan logam ketika ada bahaya listrik.

8.5.10. Do not stand or work on the top two rungs.

Jangan berdiri atau bekerja di dua anak tangga teratas.

8.5.11. Do not place ladder in passageways, doorways, driveways.

Jangan letakkan tangga di tempat orang berjalan, pintu, jalan kendaraan.

8.5.12. Barricade shall be installed at working area.

Barikade harus dipasang di tempat kerja

8.5.13. Do not place planks on the top cap.

Jangan letakkan papan di atas cap.

8.5.14. Ladder is prohibited to be used in slippery area

Tangga dilarang digunakan di area yang licin.

8.5.15. Do not tie two or more separated ladder to reach an elevated work area.

Jangan mengikat dua atau lebih tangga terpisah untuk mencapai area kerja yang tinggi

8.5.16. Do not bring any material while climbing the vertical and A-ladder and ensure three point of contact is done

Dilarang membawa material ketika menaiki tangga-A dan vertikal dan memastikan kontak tiga poin telah dilakukan

8.6. Inspection

Inspeksi

8.6.1. All tools and equipment which be used during work in CAP shall request tools and equipment inspection to authorized person (*Refer to Attachment 8 Tools and Equipment Inspection Request*)

Semua alat dan peralatan yang digunakan selama bekerja di CAP harus mengajukan permintaan inspeksi alat dan peralatan terhadap orang yang berwenang (Lihat Lampiran 8 Tools and Equipment Inspection Request)

8.6.2. Daily check/inspection sheet of tools and equipment used in CAP e.g. heavy equipment, welding mechine, vehicle, and electrical tools have to provide by contractor.

Cek harian/lembar inspeksi alat dan peralatan yang digunakan di CAP cth. peralatan berat, alat las, kendaraan dan peralatan listrik harus disediakan oleh kontraktor.

9. Lock Out Tag Out (refer to procedure No. F2820-P0121-01) and Line Breaking (refer to procedure No. F2820-P0109-03)

Lock Out Tag Out (refer to procedure No. F2820-P0121-01) dan Line Breaking (mengacu pada prosedur No. F2820-P0109-03)

9.1. The LOTO is used for all work in area of PT Chandra Asri Petrochemical Tbk by the worker who involved works with an energy source and/or removing the device or pipe hazards in the production process or may store the dangerous energy sources, such as pressure, temperature, hazardous substances, etc.

LOTO digunakan untuk semua pekerjaan di area PT. Chandra Asri Petrochemical, Tbk. oleh pekerja yang dilibatkan dalam pekerjaan dengan sumber energi dan/atau melepas alat atau pipa yang berbahaya di proses produksi atau yang mungkin menyimpan sumber energi yang berbahaya, seperti tekanan, suhu, zat berbahaya, dll.

9.2. Everyone involved must comply with the standards, consist of CAP's employees, contractors, temporary contractors and other individuals who can be harmed by work.

Setiap orang yang dilibatkan harus memenuhi standar, yang terdiri dari karyawan CAP, kontraktor, kontraktor temporary, dan individu lain yang dapat tercederai oleh pekerjaan.

10. Safe Work Permit (refer to Safe Work Permit Procedure no. F2820 – P0116)

Safe Work Permit (mengacu pada Safe Work Permit Procedure no. F2820 – P0116)

10.1. Safe Work Permit shall be issued by CAP employee only

Safe Work Permit hanya dapat dibuat oleh karyawan CAP

10.2. Safe Work Permit shall be issued one day before work for planned work.

Izin kerja untuk pekerjaan yang terencana harus diajukan satu hari sebelumnya.

10.3. Work activity below shall be issued separately by Cold Work Permit with approval from Area Authority Department Manager and not allowed to be included in other Cold Work

Aktivitas pekerjaan dibawah ini wajib diajukan secara terpisah menggunakan Cold Work Permit dengan persetujuan dari Departemen Manager Area Authority dan tidak diijinkan diikutkan ke dalam pekerjaan lain yang tergolong Cold Work

10.3.1. High Pressure Test more than 1 kg/cm^2 and volume 2.25 litre

Tes Tekanan Tinggi lebih dari 1 kg/cm^2 dan volume 2.25 liter

10.4. Safe Work Permit system in CAP refer to Attachment 10. Safe Work Permit Procedure

Sistem ijin kerja di CAP sesuai dengan Lampiran 10. Safe Work Permit Procedure.

11. Lifting Work

Pekerjaan Pengangkatan

11.1. Worker

Pekerja

11.1.1. Crane Operator shall have valid **certificate from Ministry of Man Power RI** (SIO) and the certificate shall be comply with crane capacity[11].

*Operator crane harus memiliki sertifikat yang valid dari **Kementerian Tenaga Kerja RI** (SIO) dan sertifikat harus sesuai dengan kapasitas crane.*

11.1.2. All lifting work activity shall be assisted by signalman refer to point 4.6.2.1.

Semua aktivitas pekerjaan pengangkatan harus dibantu oleh orang pemberi sinyal sesuai dengan poin 4.6.2.1.

11.1.3. Duty, responsibility and requirement for signalman refer to point 4.6.2.2.

Peran, tanggung jawab, dan persyaratan orang pemberi sinyal sesuai dengan poin 4.6.2.2.

11.1.4. Worker shall use specific identity provided by themself (*Refer to Attachment 6 Worker Identification*).

Pekerja harus menggunakan identitas khusus yang disediakan sendiri (Lihat Lampiran 6 Worker Identification)

11.1.5. Only qualified workers shall perform lifting activity (Refer to poin 4.5)

Hanya pekerja yang berkompeten yang dapat melakukan aktivitas pengangkatan (Lihat poin 4.5)

11.2. Personal protective equipment for Lifting Work as mention in JOHAN/ JSA

Alat pelindung diri untuk pekerjaan pengangkatan seperti tercantum di JOHAN/ JSA

11.2.1. Basic PPE refer to point 7.1

APD dasar sesuai dengan poin 7.1

11.2.2. Hand protection :

Pelindung tangan :

11.2.2.1. Leather glove

Sarung tangan kulit

11.2.3. Other PPE as required in JOHAN/ JSA

APD lain yang tercantum dalam JOHAN/ JSA

11.3. Method of work, equipment and condition

Metode kerja, peralatan dan kondisi

11.3.1. Mechanical Lifting

Pengangkatan mekanis

Any lifting using mechanical equipment driven by electrical or internal combustion engine such as : crane, hoist/ overhead crane, winch, etc.

Setiap pengangkatan menggunakan peralatan mekanik yang digerakkan oleh elektrik atau mesin pembakaran internal seperti : crane, hoist/ overhead crane, winch, dll.

[11] Operator crane for lifting activity refer to Ministerial Regulation of Manpower and Transmigration No. Per.09/MEN/VII/2010 about crane operator

11.3.1.1. Mechanical lifting activity shall be stopped if wind speed at lifting point which shown at crane wind speed/ measurement, more than 9 m/s[12].

Aktivitas Mechanical Lifting wajib dihentikan jika kecepatan angin di titik pengangkatan yang ditunjukkan di wind speed crane/ pengukuran, melebihi 9 m/s.

11.3.1.2. Heavy equipment shall away from excavation, sewer min. 1 m.

Peralatan berat harus jauh dari penggalian, saluran pembuangan min.1 m.

11.3.1.3. Cover plate shall be installed on working floor for lifting activity based on executor calculation.

Cover plate harus dipasang di lantai kerja untuk aktivitas pengangkatan berdasarkan perhitungan dari pelaksana kerja.

11.3.1.3.1. *Crawler shall use rubber when moving on the concrete or asphalt*

Crawler harus menggunakan karet ketika bergerak di atas beton atau aspal.

11.3.1.4. Base plate shall be provided for heavy equipment vehicle (truck, crane & forklift) which operated in gravel, grating, and cover ditch area.

Base Plate harus disediakan untuk kendaraan berat (truk, crane, dan forklift) yang dioperasikan di area gravel, grating dan cover ditch.

11.3.1.5. All lifting activity using lifting equipment have to attached lifting plan form.

Semua aktivitas pengangkatan yang menggunakan peralatan pengangkatan harus disertai formulir rencana pengangkatan.

11.3.1.6. Maximum load capacity for lifting equipment shall be 75% from design capacity (ASME)[13].

Maksimum kapasitas beban untuk peralatan pengangkatan harus 75% dari kapasitas desain (ASME).

11.3.1.7. Lifting equipment should have pass inspection and function test in CAP by ACI.

Peralatan pengangkatan harus lulus inspeksi dan tes fungsi di CAP oleh ACI.

11.3.1.8. Transportation of heavy equipment (crane, unicrane, dump truck, trailer, lorry with capacity higher than equal to 18 Ton) in Red Area shall be escorted with flagman min. 2 peoples.

Transportasi peralatan berat (crane, unicrane, dump truck, trailer, lorry kapasitas lebih dari sama dengan 18 ton) di Red area harus dipandu oleh flagman min. 2 orang.

11.3.1.9. Lifting equipment shall have **valid certificate from Ministry of Man Power RI**.

[12] OSHA29 CFR 1926.1431(k)(8)(i)): Cranes & Derricks in Construction
[13] Maximum load refer to ASME B30.5, Unicrane only for mobilize and demobilize material

Peralatan pengangkatan harus memiliki ***sertifikat yang valid dari Kementerian Tenaga Kerja RI.***

11.3.1.10. Hard barricade and safety sign shall install during activity

Hard barricade dan safety sign harus dipasang selama aktivitas.

11.3.1.11. Tag line/Control Line shall be provided as standard required (1.5x of elevation or min. 10 meters) and for long object install tag line not on 1 side only during activity.

Tag line/control line harus disediakan sesuai standar persyaratan (1.5x panjang atau min. 10 meter) dan untuk objek panjang pasang tag line tidak hanya di satu sisi selama aktivitas.

11.3.1.12. Critical lifting can not perform within 18.00 till 07.00. Criteria of critical lifting as below:

Pengangkatan kritis tidak dapat dilakukan setelah jam 18.00 hingga 07.00. Kriteria pengangkatan kritis sebagai berikut:

11.3.1.11.1. Lifting man basket

Pengangkatan keranjang manusia

11.3.1.11.2. Dimension of load > 10 meters, except for loading/ unloading material from/ to vehicle

Dimensi beban > 10 meter, kecuali menaikkan/ menurunkan material dari/ ke kendaraan

11.3.1.11.3. Weight of load > 10 Ton, except for loading/ unloading material from/ to vehicle

Berat beban > 10 Ton, kecuali menaikkan/ menurunkan material dari/ ke kendaraan

11.3.1.11.4. Lifting use 2 crane (For special case need approval GM of Operation, Maintenance/EGD/Project, and SHE)

Pengangkatan menggunakan 2 crane (Untuk kasus khusus perlu persetujuan GM Operation, Maintenance/EGD/Project, dan SHE*)*

11.3.1.12. All lifting accessories shall pass CAP Tools and Equipment Inspection.

Semua aksesoris pengangkatan harus lulus Inspeksi Alat dan Peralatan CAP

11.3.2. Manual Lifting

Pengangkatan manual

Any lifting using manual mechanical equipment such as lever block, chain block, manual roller, etc.

Semua pengangkatan menggunakan peralatan mekanis manual seperti chain block, manual roller, dll.

11.3.2.1. Lever block is not allowed for hanging object.

Lever block tidak diijinkan untuk menggantung object.

11.3.2.2. Process pipeline and beam are prohibited to be used as anchor point.

Pemipaan proses dan beam tidak dapat digunakan sebagai titik tumpu.

11.3.2.3. Critical manual lifting consider if one of condition below occur:

Pengangkatan manual kritis jika memenuhi salah satu kondisi berikut:

11.3.2.3.1. Weight more than 500 kg.

Beban lebih dari 500 kg.

11.3.2.3.2. Length more than 10 meters

Panjang lebih dari 10 meter.

11.3.2.3.3. Lifting in conjested area.

Pengangkatan di area yang sempit.

11.3.2.4. Critical manual lifting shall fulfill condition as below:

Pengangkatan manual kritis harus memenuhi kondisi sebagai berikut:

11.3.2.4.1. Lifting gear set up by rigger.

Peralatan pengangkatan dipasang oleh rigger.

12. Hot Work Activity[14]

Aktivitas Hot Work

12.1. Hot Work Class I

12.1.1. Definition

Definisi

12.1.1.1. Hot Work Class I is an activity which produce heat and sparks (open flame)

Hot Work Kelas I merupakan aktivitas yang menghasilkan panas dan percikan api (api terbuka).

12.1.1.2. Hot Work Class I require gas test before starting work and need for operational control or check periodically.

Hot Work Kelas I memerlukan tes gas sebelum pekerjaan dan memerlukan kontrol operasional atau cek secara berkala

12.1.1.3. Example of activity such as cutting, grinding, welding, or with the use of electrical power that may be sparking up.

Contoh aktivitas seperti pemotongan, gerinda, pengelasan, atau dengan menggunakan sumber listrik yang dapat menimbulkan percikan api.

12.1.2. Worker

Pekerja

12.1.2.1. Fire watchman shall on the location of work during the activity held.

[14] NFPA 51B Standard for Fire Prevention During Welding, Cutting, and Other Hot Work & OSHA 29 CFR 1910.252 Welding, Cutting, Brazing

Fire watchman wajib berada di lokasi selama aktivitas berlangsung.

12.1.2.2. Fire watchman shall standby maximum 3 hot work/ 1 person in radius 15 meter on same level

Fire watchman harus bersiaga maksimum 3 hot work/ 1 orang dalam radius 15 meter pada level yang sama.

12.1.2.3. Fire watchman shall use fire watchman vest

Fire Watchman wajib menggunakan rompi fire watchman

12.1.2.4. Worker shall pass SHE training and/or competency test refer to point 4.5

Pekerja harus lulus pelatihan SHE dan/atau tes kompetensi sesuai dengan poin 4.5

12.1.2.5. Closed supervise during work

Pengawasan ketat selama pengerjaan.

12.1.2.6. All worker shall understand of hazard and obey requirement was stated on JOHAN.

Semua pekerja wajib paham mengenai bahaya dan mematuhi persyaratan yang tercantum di JOHAN.

Figure 12. 1 Hot Work Class I Requirement
(Fire Watchman, FE, PPE, Shelter) Example

12.1.2.7. Fire watchman duty, responsibility and requirement:

Peran, tanggung jawab dan persyaratan Fire Watchman

Table 12. 1 Fire watchman Duty,Responsibility and Requirement

Position / *Posisi*	**Duty & Responsibility / *Peran & Tanggung jawab***	**Requirement / *Persyaratan***
Fire Watchman	1. Shall ensure that safe condition is maintained during hot work. / *Memastikan kondisi aman tetap terjaga selama hot work.* 2. Shall have the authority to stop the hot work operations if unsafe condition arise/ *Memiliki wewenang untuk menghentikan pekerjaan jika terjadi kondisi tidak aman*	*1.* Pass Training CAP:/*Lulus pelatihan CAP:* *a.* Hot work activity./*Aktivitas hot work* *b.* Working at height./*Bekerja di ketinggian (depend on the job)* *c.* Basic Fire/*Dasar penanganan kebakaran*

	3. Shall have fire extinguishing minimal 2 e.a with rating 4A40BC readily available and shall be trained to utilize it. / *Memiliki pemadam kebakaran minimal 2 buah dengan tipe 4A40BC tersedia di tempat dan telah dilatih untuk menggunakannya.* 4. To ensure point of hot work shall be tightly covered with fire blanket shelter or noncombustible material to prevent the passage of sparks to adjacent areas. / *Untuk memastikan titik hot work harus tertutup rapat dengan fire blanket shelter atau material tidak mudah terbakar untuk mencegah percikan api ke area yang berdekatan.* 5. Shall familiar with the facilities and Emergency procedures. / *Harus paham dengan fasilitas dan prosedur emergency.* 6. Shall stay for at least 30 minutes after completion of hot work operation in order to detect and extinguish smoldering fire. / *Harus berjaga minimal 30 menit setelah pelaksanaan hot work untuk mendeteksi dan menghilangkan bara api.* 7. Communicated to his/her supervisor if any emergency condition occurs caused by activity./*Mengko-munikasikan apabila terjadi keadaan emergency yang diakibatkan oleh kegiatan tersebut ke supervisornya.* 8. Give first rescue and evacuation during emergency condition./ *Memberi pertolongan pertama dan evakuasi saat kejadian emergency.*	

12.1.2.8. Worker shall use specific identity provided by themself (Refer to Attachment 6 Worker Identification).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6 Worker Identification)

12.1.3. Personal protective equipment for Hot Work Class I as mention in JOHAN

Alat pelindung diri untuk Hot Work Kelas I seperti tercantum di JOHAN

12.1.3.1 Basic PPE refer to point 7.1

APD dasar sesuai dengan poin 7.1

12.1.3.2 Head protection : Hot Work Class I worker shall wear head protective to cover face and eye.

Pelindung kepala : Pekerja Hot Work Kelas I harus menggunakan pelindung kepala untuk melindungi wajah dan mata.

12.1.3.2.1. Welder use hard hat during perform welding activities

Welder menggunakan topi keras selama melakukan kegiatan pengelasan.

12.1.3.2.2. Use welding shield which can be attached with safety helmet

Menggunakan pelindung pengelasan yang dapat dipasangkan dengan helm safety

12.1.3.2.3. Use safety google beneath face shield for grinding activity.

Menggunakan safety google di bawah face shield untuk aktivitas menggerinda.

12.1.3.3 Respiratory protection:

Pelindung pernapasan:

12.1.3.3.1. Toxic fumes may be generated from welding, so additional appropriate PPE such as mask shall be used

Asap beracun yang mungkin timbul dari pengelasan, sehingga tambahan APD yang sesuai seperti masker wajib digunakan

12.1.3.4 Hand protection :

Pelindung tangan :

12.1.3.4.1 Welding glove for welder

Sarung tangan las untuk welder

12.1.3.5 Body protection :

Pelindung tubuh :

12.1.3.5.1 Apron for welder

Apron untuk welder

12.1.3.6 Other PPE as required in JOHAN/JSA

APD lain yang tercantum dalam JOHAN/JSA

12.1.4. Special method of work, equipment and condition for Hot Work Class I

Metode kerja, peralatan dan kondisi khusus untuk Hot Work Kelas I

12.1.4.1. All activity shall be covered with blanket min. melting point above 550 °C and non-asbestos material[15]

Semua aktivitas wajib ditutupi dengan blanket yang memiliki min. titik leleh di atas 550 ^{o}C dan material non-asbestos

12.1.4.2. Provide base plate metal for hot work at height and the blanket should be on wet condition (depends on work area condition).

[15] Fire Blanket specification refer to AS/NZS 3504:2006

Menyediakan dasar plat logam untuk pekerjaan hot work di atas ketinggian dan blanket harus dalam keadaan basah (tergantung kondisi area kerja).

12.1.4.3. Fire blanket shelter shall be provided to protect fire spark

Fire blanket shelter harus disediakan untuk mencegah percikan api

12.1.4.4. Before cutting pipe, WEA and AA shall mark on the pipe which will be cut to inform the worker who will perform pipe cutting.

Sebelum memotong pipa, WEA dan AA wajib menandai pipa yang akan dipotong untuk memberi tahu pekerja yang akan melakukan pemotongan pipa.

12.1.4.5. When pipe cutting with suspect presence of Hydrocarbon, WEA worker shall conduct manual drill in cutting point, and gas test inside of pipe. For cutting the pipe which handle all kind of material shall be witnessed by AA to ensure cutting point exactly and no hazard may occur.

Saat pemotongan pipa yang diduga mengandung Hidrokarbon, pekerja harus melakukan manual dril pada lokasi pemotongan, dan gas tes di dalam pipa. Untuk pemotongan pipa yang mengandung semua jenis material wajib disaksikan oleh AA untuk memastikan titik pemotongan dengan tepat dan tidak ada bahaya yang dapat terjadi.

12.1.4.6. Work area shall free from combustible and flammable material in radius 15 meters[16].

Area kerja harus bebas dari bahan yang bisa terbakar dan mudah terbakar dalam radius 15 meter.

12.1.4.6.1. Placement of welding machine, genset, and compressor shall follow below requirement:[17]

Penempatan semua mesin las, genset, and kompresor wajib memenuhi persyaratan dibawah ini:

12.1.4.6.1.1. Prohibited to block emergency facility access.

Dilarang menutupi akses fasilitas darurat

12.1.4.6.1.2. Shall be placed outside unit process area.

Wajib diletakkan di luar area unit proses

12.1.4.6.1.3. Prohibited to be placed on :

Dilarang untuk diletakkan pada :

12.1.4.6.1.3.1. Under pipe rack/ cable tray

Dibawah perpipaan/ kabel tray

12.1.4.6.1.3.2. Above or less than 2 m from close ditch

Di atas atau kurang dari 2 m dari close ditch

[16] Work area free from combustible material min 15 meters refer to NFPA 51 B
[17] Placement of winternal combustion engine refer to NFPA 3 article 4.4.3.6 & 7.4.1.

12.1.4.6.1.3.3. Near hydrocarbon venting/ drain (less than 2 m)

Dekat dengan venting/ drain hidrokarbon (kurang dari 2 m)

12.1.4.7. Compressed cylinder[18]

Tabung bertekanan

12.1.4.7.1. Compressed cylinder shall be placed in rack/ temporary rack and not blocked emergency facility access.

Tabung bertekanan diletakkan didalam rak/ rak sementara dan tidak menutupi akses fasilitas darurat.

12.1.4.7.2. Storage of oxygen cylinder and fuel gas cylinder or combustible material shall be separated with minimum distance 6 meters or by a non-combustible barrier at least 1,5 meters high having fire resistance rating of at least one-half hour.

Penyimpanan silinder oksigen dan silinder bahan bakar gas atau material mudah terbakar harus dipisahkan dengan minimum jarak 6 meter atau dengan penghalang tidak mudah terbakar minimal 1,5 meter dengan ketahanan api minimal satu setengah jam.

12.1.4.7.3. During usage, oxygen cylinder and fuel gas cylinder shall be separated on different rack

Selama penggunaan, oxygen cylinder dan fuel gas cylinder wajib dipisahkan pada rak yang berbeda

12.1.4.7.4. Mobilization of pressurized bottle shall use cylinder gas trolley
Perpindahan botol bertekanan wajib menggunakan troli cylinder gas

12.1.4.7.5. Pressurized bottle shall be protected from all hot surface, covered with fire blanket, and avoid from radiation heat.

Tabung bertekanan wajib diamankan dari sumber panas, ditutup dengan fire blanket, dan dijauhkan dari panas radiasi.

12.1.4.7.6. Oxygen Cylinder shall be cleared from oil and grease.

Tabung oksigen wajib dibersihkan dari minyak dan grease.

12.1.4.7.7. Valve stem wrench shall be left in place while pressurized bottle is in use/on service.

Gagang kunci pembuka katup wajib ada di tempat ketika tabung bertekanan sedang digunakan.

12.1.4.7.8. Pressurized bottle contain oxidator, innert gas and flammable gas shall not be taken into confined space.

Tabung bertekanan mengandung oksidator, gas innert dan gas mudah terbakar tidak diperbolehkan dimasukkan ke area terbatas.

12.1.4.7.9. Pressurized bottle shall be equipped with cap

[18] OSHA 29 CFR 1910.101: Compressed Gasses General Requirement

Tabung bertekanan wajib dilengkapi dengan tutup pelindung

12.1.4.7.10. Pressurized bottle shall be placed away from electrical panel/ apparatus.

Tabung bertekanan wajib diletakkan jauh dari panel/ peralatan listrik.

12.1.4.7.11. Before starting work, worker shall make sure pressurized bottle not leak by leakage test on regulator valve with soap solution.

Sebelum pekerjaan dimulai, pekerja wajib memastikan tabung bertekanan tidak bocor dengan tes kebocoran di katup regulator dengan larutan sabun.

12.1.4.7.12. Standby pressurized bottle shall be installed with valve cap.

Tabung bertekanan cadangan wajib dipasang pelindung katup.

12.1.4.7.13. Pressurized bottle's regulator shall used dedicated regulator according to cylinder content and work properly.

Regulator tabung bertekanan wajib menggunakan regulator sesuai dengan isi silinder dan bekerja dengan baik.

12.1.4.8. Welding cable shall have no spliced within 3 meters of the electrode holder. Placement of welding cable shall not be rolled. Welding cable in poor condition is prohibit to be utilized

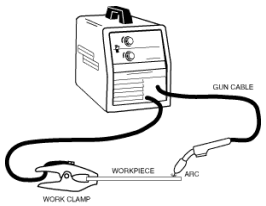
Kabel las tidak boleh ada sambungan sepanjang 3 meter ke electrode holder. Penempatan kabel las tidak boleh digulung. Kabel las dengan kondisi tidak layak tidak boleh digunakan

12.1.4.9. The frame of arc welding and cutting machine shall be grounded.

Kerangka mesin las dan mesin pemotong wajib digrounding.

12.1.4.10. Massa cable shall be clamped properly in one line system as nearest as possible with welding point according to CAP welding procedure standard.

Kabel massa harus dijepit dangan baik pada satu line system sedekat mungkin dengan titik pengelasan sesuai dengan prosedur pengelasan CAP.



(a)Position of massa cable & welding cable

(b)Proper work clamp for mass cable

Figure 12. 2 Welding & massa cable position

12.1.4.11. Connection between welding cables shall use proper connector

Koneksi antara kabel las dengan kabel las harus menggunakan konektor yang layak

Figure 12. 3 Connector for welding cables

12.1.4.12. Welding torch shall be equipped with double flashback arrester (output cylinder and input of gun) for oxygen and flammable cylinder.

Welding torch wajib dilengkapi dengan pelindung flashback (aliran balik) ganda (keluaran silinder dan masukan gun) untuk tabung oksigen dan bahan mudah terbakar.

12.1.4.13. Ignition of welding torch shall equipped with electrical lighter.

Penyalaan welding torch wajib dilengkapi dengan pemantik elektrik

12.1.4.14. Electrodes and holder shall be protected when not in use.

Elektroda dan holder wajib diberi pelindung saat tidak digunakan.

12.1.4.15. Fire extinguish (FE) min. 2 ea type 4A40BC shall be placed near work location. FE shall be provided by contractor[19].

Pemadam api (FE) min. 2 ea dengan tipe 4A40BC wajib diletakkan dekat dengan lokasi kerja. FE wajib disediakan oleh kontraktor.

12.1.4.16. PVC Sheet is not allowed as spark protection in Hot Work activity.

PVC sheet tidak diijinkan sebagai proteksi percikan api selama aktivitas Hot Work.

12.1.4.17. Fire Watchman shall use specific identity which provided by themself (Refer to Attachment 6 Worker Identification).

Fire Watchman wajib menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6 Worker Identification)

12.2. Hot Work Class II

12.2.1. Definition

Definisi

12.2.1.1. Hot Work Cass II is any activity which may cause heat and sparks (non open flame)

Hot Work Kelas II merupakan segala aktivitas yang dapat menghasilkan panas dan percikan api (bukan api terbuka).

12.2.1.2. Hot Work Class II require gas test before starting work and need for operational control or check periodically.

Hot Work Kelas II memerlukan tes gas sebelum pekerjaan dan memerlukan kontrol operasional atau cek secara berkala.

12.2.1.3. Example of activity such as the spray painting more than 1 m/s, drilling work by drill , water jet, sandblasting, Internal combustion engine.

[19] Fire exthinguisher used according to NFPA 10 article 6.2.1.1., 6.3.1.1. & 6.4

Contoh aktivitas seperti pengecatan spray dengan kecepatan lebih dari 1 m/s, pengeboran menggunakan bor, water jet,mesin diesel.

12.2.2. Worker

Pekerja

12.2.2.1 Worker shall pass SHE training and/ or competency test refer to point 4.5

Pekerja harus lulus pelatihan SHE dan/ atau tes kompetensi sesuai dengan poin 4.5

12.2.2.2 Closed supervise during work

Pengawasan ketat selama pengerjaan.

12.2.2.3 All worker shall understand of hazard and obey requirement was stated on JOHAN.

Semua pekerja wajib paham mengenai bahaya dan mematuhi persyaratan yang tercantum di JOHAN.

12.2.3. Personal protective equipment for Hot Work Class II as mention in JOHAN

Alat pelindung diri untuk Hot Work Kelas II seperti tercantum di JOHAN

12.2.3.1. Basic PPE refer to point 7.1

APD dasar sesuai poin 7.1

12.2.3.2. Other PPE as required in JOHAN

APD lainnya yang tercantum dalam JOHAN

12.3. General method of work, equipment and condition

Metode kerja, peralatan dan kondisi umum

12.3.1. Risk assessment (follow Table 12.1 for Hot Work minimum requirement) shall be submitted, approved and socialized to all worker proved by attendance list.

Penilaian resiko (mengikuti Tabel 12.1 untuk persyaratan minimum Hot Work) harus diajukan, disetujui dan disosialisasikan ke semua pekerja, dibuktikan dengan daftar hadir.

12.3.2. Defective equipment is not allowed to be utilized

Peralatan yang rusak tidak diijinkan untuk digunakan.

12.3.3. All hot work tools and equipment shall pass tools and inspection CAP.

Semua alat dan peralatan hot work harus lulus inspeksi alat dan peralatan CAP.

Table 12. 1 Hot Work Regulation based on Hazardous Area

Work Area / Description	Hazardous Area		Non Hazardous Area	
	Class I	Class II	Class I	Class II
1st Gas Test Result (0%LEL)	✓	✓		
Periodic Gas Test	✓	✓		
Grounding Installation for enginee	✓	Optional	✓	Optional
Install fire blanket	✓		✓	
Prepare 2 FE (4A40BC) in work location	✓	Optional 1FE	✓	Optional
Fire Watchman standby	✓			
Prepare fire hose/ fix monitor	Optional			
Prepare wet working area condition	Optional			

12.4. Hot Tapping[20]

Hot Tapping

12.4.1. Hot Tapping special requirement:

Persyaratan khusus Hot Tapping:

12.4.1.1. On Tank in Service

Pada tangki yang sedang digunakan

12.4.1.1.1. Shall maintain liquid in the tank at a level at least 3 feet (1 meter) above the area and hydrostatic tank shell is less than 7000 psi in area where the work is being performed

Wajib menjaga ketinggian cairan di tangki minimal 3 feet (1 meter) di atas area dan tekanan hidrostatik selubung tangki < 7000 psi di area dimana pekerjaan dilakukan

12.4.1.1.2. Prohibited to hot tap or weld at < 1 m under liquid level, or above liquid level in atmospheric pressure storage tank because of the potential danger of an explosive inside the tank vapor space, or hydrostatic tank shell stress > 7000 psi, or on the exterior of tanks in service

Dilarang melakukan hot tap atau pengelasan di < 1 m dibawah ketinggian cairan, atau diatas ketinggian cairan dalam tekanan atmosfer karena berpotensi bahaya ledakan di dalam ruang kosong tangki, atau tekanan hidrostatik selubung tangki > 7000 psi, atau di dinding luar tangki yang sedang digunakan

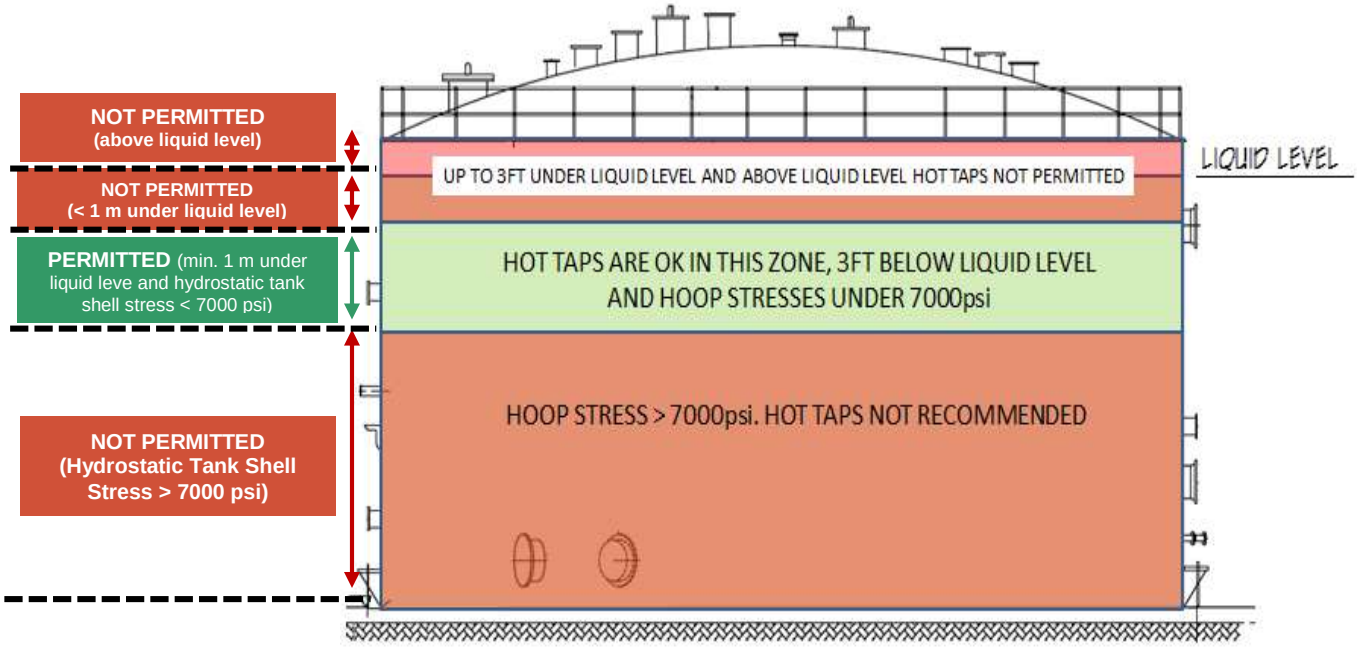


Figure 12.4 Hot Tap on the service tank requirement[20]

12.4.1.2. On the Decks of Floating Roof Tanks

Di atas Tangki Floating Roof

[20] American Petroleum Institute (API) RP 2201: Hot Tapping and API 653: Tank Inspection, Repair, and Alteration Section 7.14 Hot Tap

12.4.1.2.1. Welding should not be permitted on the decks of floating roof tanks in service

Pengelasan tidak boleh dilakukan di atas tangki floating roof yang sedang digunakan

12.4.1.3. Hot Tapping Inside Confined Space or Excavation

Hot Tapping di dalam Confined Space atau Penggalian

12.4.1.3.1. Follow the Confined Space requirement at point 14.2

Mengikuti persyaratan Confined Space pada poin 14.2

12.4.1.4. On Lined Piping or Lined Equipment

Pada Pipa atau Peralatan yang terlapisi

12.4.1.4.1. Hot tapping or welding should not be permitted on in service lines or equipment with cladding unless authorized by specialized procedure or following an engineering evaluation

Hot Tapping atau pengelasan tidak diijinkan pada pipa atau peralatan terlapisi yang sedang digunakan kecuali ada prosedur khusus atau mengikuti evaluasi engineering

12.4.1.5. Hot Tapping Upstream of Equipment and Valves

Hot Tapping di upstream peralatan dan valve

12.4.1.5.1. Avoid hot tapping upstream of rotating equipment or automatic control valves, unless such equipment is protected from the cutting by filter

Hindari hot tapping di upstream peralatan yang berputar atau control valve otomatis, kecuali peralatan dilindungin dari pemotongan oleh filter

12.4.2. Hot tapping should not be performed on piping or equipment under vacuum

Hot tapping tidak diijinkan dilakukan pada pipa atau peralatan di bawah kondisi vakum

12.4.3. Hot tapping should not be performed on piping or equipment containing the following materials:

Hot tapping tidak diijinkan dilakukan pada pipa atau peralatan yang berisi material dibawah ini:

12.4.3.1. Vapor-air or vapor-oxygen mixtures near or within their flammable explosive range

Campuran uap-udara atau uap-oksigen di dekat atau di dalam rentang bahaya kebakaran dan ledakannya

12.4.3.2. Hydrogen

Hidrogen

12.4.3.3. Peroxides, Chlorine, or other chemicals likely to violently decompose or become hazardous from the heat of welding

Peroksida, Klorin, atau bahan kimia yang kemungkinan secara hebat terurai atau menjadi bahaya karena panas pengelasan

12.4.3.4. Caustics, amines, and acid.

Kaustik, amina, dan asam

12.4.3.5. Certain unsaturated hydrocarbons (such as ethylene). These may experience exothermic decomposition due to high temperatures caused by welding

Hidrokarbon tak jenuh tertentu (seperti Etilen). Material tersebut mungkin akan terurai eksotermik karena suhu tinggi yang disebabkan oleh pengelasan

12.4.3.6. Oxygen enriched atmosphere

Atmosfer dengan oksigen tinggi

12.5. PWHT (Post Weld Heat Treatment)

Perlakuan Pemanasan Setelah Pengelasan

12.5.1. PWHT Equipment and personnel shall have certificate

Peralatan dan personil PWHT wajib mempunyai sertifikat

12.5.2. PWHT grounding shall be installed at pipe or equipment around PWHT coverage area and grounded in grounding station such arrangement below:

Grounding untuk WHT wajib dipasang pada pipa atau peralatan di sekeliling area yang di PWHT seperti susunan berikut:

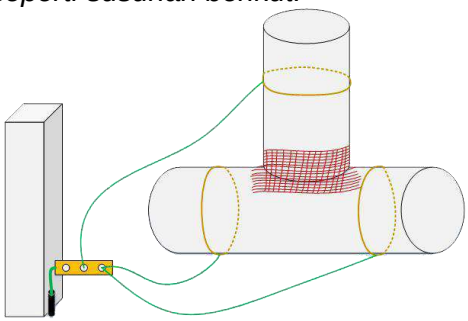


Figure 12.5. PWHT Grounding System

13. Work at Height

Bekerja di Ketinggian

13.1. Worker

Pekerja

13.1.1 Worker shall pass SHE training and/ or competency test refer to point 4.5

Pekerja harus lulus pelatihan SHE dan/ atau tes kompetensi sesuai dengan poin 4.5

13.1.2 Worker shall pass CAP heath check (body temperature and blood pressure) if work in temporay platform more than 1,8 meter prior start work.

Pekerja wajib lolos tes kesehatan CAP (suhu tubuh dan tekanan darah) jika bekerja lebih di platform sementara lebih dari 1,8 meter sebelum memulai pekerjaan.

13.1.3 Worker shall use specific identity provided by themself (Refer to Attachment 6 Worker Identification).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6 Worker Identification)

13.2. Personal protective equipment for Work at Height as mention in JOHAN

Alat pelindung diri untuk bekerja di ketinggian seperti yang tercantum di JOHAN

13.2.1. Basic PPE as point 7.1

APD dasar seperti poin 7.1

13.2.2. Hand protection :

Pelindung tangan :

13.2.2.1. Cotton glove

Sarung tangan katun

13.2.3. Body protection (higher than 1.8 m at temporary platform):

Pelindung tubuh (lebih dari 1.8 m platform sementara) :

13.2.3.1. Full body harness double lanyard with 1 absorber

Full body harness double lanyard dengan 1 absorber

13.2.4. Other PPE as required in JOHAN

APD lainnya sesuai dengan yang tercantum di JOHAN

13.3. Method of work, equipment and condition

Metode kerja, peralatan dan kondisi :

13.3.1 Work more than 1,8 meters shall provide scaffolding and safe access.

Pekerjaan di ketinggian lebih dari 1,8 meter harus disediakan scaffolding dan akses aman.

13.3.2 Pipeline, pipe rack, pipe sleeper are not access for work at height.

Pipeline, pipe rack, pipe sleeper bukan akses untuk bekerja di ketinggian.

13.3.3 If there is other activity or traffic below work at height activity, working area shall cover with safety net.

Jika ada aktivitas lain atau lalu lintas di bawah aktivitas bekerja di ketinggian, area kerja wajib dilindungi dengan safety net.

13.3.4 Safety sign and barricade should be installed in the area exposed or below work at height activity as mention in point 4.6.1 and 4.7.

Tanda keselamatan dan barikade harus dipasang di area yang terdampak atau berada di bawah aktivitas bekerja di ketinggian sesuai dengan poin 4.6.1 dan 4.7.

13.3.5 Tools shall be put on fix basket or tight with rope or put on proper tools belt with worker.

Alat harus diletakkan dalam keranjang yang tidak bergerak atau diikat dengan tali atau diletakkan pada tali pinggang peralatan.

13.3.6 Boxes, kegs or unstable object is not allowed for working at height as additional equipment.

Kotak, tong, atau objek tidak stabil lainnya tidak diperbolehkan untuk pekerjaan di ketinggian sebagai peralatan tambahan.

13.3.7 Activity on the roof shall be covered with hard barricade and/ or lifeline from metal sling.

Kegiatan di atap harus dilindungi oleh hard barricade dan/ atau lifeline dari kawat logam.

13.3.8. All work at height tools and equipment shall passed CAP Tools and Equipment Inspection

Semua alat dan peralatan untuk bekerja di ketinggian wajib lulus CAP Tools and Equipment Inspection

13.3.9. Temporary platform above the water surface where worker is possible to fall and drown shall be equipped with life jacket and full body harness. Lifebouy shall be placed in workplace

Platform sementara di atas permukaan air dimana pekerja memiliki potensi jatuh dan tenggelam wajib dilengkapi dengan baju pelampung dan full body harness. Pelampung wajib diletakkan di area kerja.

14. Confined Space

Ruang Terbatas

14.1. Confined space means a space that[21]:

Ruang terbatas berarti ruangan yang:

14.1.1. Is large enough and so configured that an employee can bodily enter and perform assigned work

Cukup besar dan cukup untuk tubuh orang masuk dan melakukan pekerjaan

14.1.2. Has limited or restricted means for entry or exit

Mempunyai jalur masuk atau keluar yang terbatas

14.1.3. Is not designed for continuous employee occupancy

Tidak didesain untuk orang bekerja secara terus menerus

14.2. Location which classified as Confined Space

Lokasi yang diklasifikasikan sebagai Ruang Terbatas

14.1.1. Tank

Tangki

14.1.2. Vault

Ruang Penampungan Berpelindung

14.1.3. Well and shaft

Sumur dan saluran

14.1.4. Crawl space

Tempat dengan merayap

14.1.5. Ditch

Selokan

14.1.6. Pipelines

Saluran pipa/perpipaan

14.1.7. Pit, tube and bin

Parit, terowongan, and bak

14.1.8. Compartment

Kompartemen

14.1.9. Trench and excavation with depth more than 1.2 m

Parit dan galian dengan kedalaman lebih dari 1,2 m

14.1.10. Top External Floating Roof Tank with depth more than 1.5 m

Bagian atas luar Floating Roof dengan kedalaman lebih dari 1.5 m

14.1.11. Tower Skirts

Penyangga tower

14.1.12. Within concrete containment basin (i.e vertical tank dike) with depth more than 1.5 m

[21] OSHA 29 CFR 1910.146 Permit-required confined spaces

Di dalam basin penampung beton (misalnya: dike tangki vertikal) dengan kedalaman lebih dari 1.5 m

14.1.13. Cooling Tower Cells

Sel Cooling Tower

14.3. Requirement for Confined Space

Persyaratan untuk Ruang Terbatas

Table 14. 1 Confined Space Requirement[22]

Requirement Item	Gas test reading	Condition for entry and work
Hydrocarbon (HC) *Hidrokarbon*	Less than 1 % LEL *Kurang dari 1 % LEL*	Hot work allowed without providing Breathing Apparatus if oxygen is not less than 19.5% *Kerja panas diijinkan tanpa penyediaan Breathing Apparatus jika oksigen tidak kurang dari 19.5 %*
	Less than 4% LEL More than 1% LEL *Kurang dari 4 % LEL, Lebih dari 1 % LEL*	Cold work allowed without providing Breathing Apparatus if oxygen is not less than 19.5% *Kerja dingin diijinkan tanpa penyediaan Breathing Apparatus jika oksigen tidak kurang dari 19.5 %*
	Less than 25% LEL More than 4% LEL *Kurang dari 25 % LEL, Lebih dari 4 % LEL*	Cold work allowed with Breathing Apparatus *Pekerjaan dingin diijinkan dengan Breathing Apparatus*
	More than 25% LEL *Lebih dari 25 % LEL*	*No entry allowed* *Tidak diijinkan masuk*
Hydrogen Sulphide (H_2S) *Hidrogen Sulfida*	Between 0 to 10 ppm *Antara 0 dan 10 ppm*	Up to 8 hours without Breathing Apparatus, but using special PPE (gas mask) *Sampai dengan 8 jam tanpa Breathing Apparatus, tetapi menggunakan PPE khusus (masker gas)*
	More than 10 ppm less than 25% LEL *Lebih dari 10 ppm, kurang dari 25 % LEL*	Breathing Apparatus required. *Dibutuhkan Breathing Apparatus*
Oxygen (O_2) *Oksigen*	Between 19.5-23.5 % *Antara 19.5 – 23.5 %*	Allowed for entry without Breathing Apparatus *Diijinkan masuk tanpa Breathing Apparatus*
	Less than 19.5% *Kurang dari 19.5 %*	Entry with Breathing Apparatus and provided effective ventilation *Masuk dengan Breathing Apparatus dan menyediakan ventilasi yang efektif*
	More than 23.5 % *Lebih dari 23.5 %*	Not entry allowed *Tidak diijinkan masuk*

22

<table>
<tr><th>Requirement Item</th><th>Gas test reading</th><th>Condition for entry and work</th></tr>
<tr><td></td><td>Very low oxygen (eg: after N_2 purged)
Sangat rendah Oksigen (misalkan setelah N_2 purged)</td><td>Allowed to entry for professionally trained workers only
Diijinkan untuk masuk hanya untuk pekerja professional terlatih</td></tr>
<tr><td>Benzene
Benzena</td><td>More than 1 ppm and less than 4% LEL
Lebih dari 1 ppm dan kurang dari 4 % LEL</td><td>Organic vapor cartridge respirator need
Memerlukan masker kartrid uap organik</td></tr>
<tr><td rowspan="3">Carbon Monoxide (CO)
Karbon Monoksida</td><td>Below 35 ppm
Dibawah 35 ppm</td><td>Allowed to entry without Breathing Apparatus
Diijinkan masuk tanpa Breathing Apparatus</td></tr>
<tr><td>More than 35 ppm and less than 200 ppm
Lebih dari 35 ppm dan kurang dari 200 ppm</td><td>Allowed to work with Breathing Apparatus
Diijinkan masuk dengan Breathing Apparatus</td></tr>
<tr><td>200 ppm and above
200 ppm dan lebih</td><td>Not allowed to entry
Tidak diijinkan untuk masuk</td></tr>
<tr><td>Workplace Temperature
Suhu Tempat Kerja</td><td colspan="2">Work/ rest schedule for worker wearing normal work clothing
Pengaturan kerja/ istirahat untuk pekerja yang mengenakan pakaian normal
<table>
<tr><th>Adjusted Temperature (^oC)</th><th>Light Work (minutes work/ rest)</th><th>Moderate Work (minutes work/ rest)</th><th>Heavy Work (minutes work/ rest)</th></tr>
<tr><td>35</td><td>Normal</td><td>Normal</td><td>45/15</td></tr>
<tr><td>35.5</td><td>Normal</td><td>Normal</td><td>45/15</td></tr>
<tr><td>36.1</td><td>Normal</td><td>Normal</td><td>40/20</td></tr>
<tr><td>36.7</td><td>Normal</td><td>Normal</td><td>35/25</td></tr>
<tr><td>37.2</td><td>Normal</td><td>Normal</td><td>35/25</td></tr>
<tr><td>37.8</td><td>Normal</td><td>45/15</td><td>30/30</td></tr>
<tr><td>38.3</td><td>Normal</td><td>40/20</td><td>30/30</td></tr>
<tr><td>38.9</td><td>Normal</td><td>35/25</td><td>25/35</td></tr>
<tr><td>39.4</td><td>Normal</td><td>30/30</td><td>20/40</td></tr>
<tr><td>40</td><td>Normal</td><td>30/30</td><td>20/40</td></tr>
<tr><td>40.5</td><td>Normal</td><td>25/35</td><td>15/45</td></tr>
<tr><td>41.1</td><td>45/15</td><td>20/40</td><td>Stop work</td></tr>
<tr><td>41.7</td><td>40/20</td><td>15/45</td><td>Stop work</td></tr>
<tr><td>42.2</td><td>35/25</td><td>Stop work</td><td>Stop work</td></tr>
<tr><td>42.7</td><td>30/30</td><td>Stop work</td><td>Stop work</td></tr>
<tr><td>43.3</td><td>15/45</td><td>Stop work</td><td>Stop work</td></tr>
<tr><td>44</td><td>Stop work</td><td>Stop work</td><td>Stop work</td></tr>
</table></td></tr>
</table>

Requirement Item	Gas test reading	Condition for entry and work

Work/ rest schedule for worker wearing chemical-resistant suit
Pengaturan kerja/ istirahat untuk pekerja yang mengenakan pakaian tahan bahan kimia

Adjusted Temperature (°C)	Light Work (minutes work/ rest)	Moderate Work (minutes work/ rest)	Heavy Work (minutes work/ rest)
23.8	Normal	Normal	35/25
26.7	30/30	20/40	10/50
29.4	15/45	10/50	Stop work
32.2	Stop work	Stop work	Stop work
35	Stop work	Stop work	Stop work

Note:
Keterangan:

Work Load *Beban kerja*	Condition *Kondisi*
Rest *Istirahat*	Sit down *Duduk*
Light *Ringan*	Sit down while doing light work by hand only, or with hand and arms. Stand up while doing light work with your arm and occasionally walking *Duduk ketika bekerja ringan hanya dengan tangan, atau dengan tangan dan lengan. Berdiri ketika bekerja ringan dengan lengan dan terkadang berjalan*
Moderate *Sedang*	Work with hands and arm, with arms and legs, with arms and waist, or pushing or pulling light loads. Ordinary walking *Bekerja dengan tangan dan lengan, dengan lengan dan kaki, dengan lengan dan pinggang, atau mendorong atau menarik beban ringan. Berjalan biasa*
Heavy *Berat*	Doing intensive work, with arms and waist, carrying objects, digging, pushing or pulling heavy object. Walking fast *Melakukan pekerjaan terus menerus, dengan lengan dan pinggang, membawa barang, menggali, mendorong atau menarik beban berat. Berjalan cepat*

14.4. Worker
Pekerja

14.3.1. Worker shall pass health test by CAP, such as: body temperature and blood pressure prior start work.

Pekerja wajib lolos tes kesehatan dari CAP seperti: suhu tubuh dan tekanan darah sebelum melakukan pekerjaan.

14.3.2. Worker shall put his ID Card in front of access prior enter to CSE.

Pekerja harus meletakkan kartu ID di depan akses masuk sebelum masuk ke area terbatas.

14.3.3. WEA shall ensure hole watchman standby in location during CSE activity

WEA harus memastikan hole watchman siaga di lokasi selama aktivitas CSE.

14.3.4. Hole watchman shall standby during CSE activity. 1 hole watchman for 1 manhole or 1 hole watchman for 3 manhole within radius 15 meters at same level which have positive pressure condition.

Hole watchman wajib berjaga selama aktivitas CSE. 1 hole watchman untuk 1 manhole atau 1 hole watchman untuk 3 manhole dalam radius 15 meter pada level sama dengan kodisi tekanan positif.

14.3.5. Hole wathcman shall use hole watchman vest

Hole watchman wajib menggunakan rompi hole watchman

14.3.6. Hole watchman duty, responsibility & requirement

Peran, tanggung jawab & persyaratan Hole Watchman

Table 14. 2 Hole Watchman Duty, Responsibility & Requirement

Position / *Posisi*	**Duty & Responsibility / *Peran & Tanggung jawab***	**Requirement / *Persyaratan***
Hole Watchman	1. Does not enter the confined space/ *Tidak memasuki confined space.* 2. Be prepared to perform non-entry rescue or call for a rescue team/ *Dipersiapkan untuk melakukan penyelamatan di luar atau menghubungi tim penyelamat.* 3. Performs entry rescue only when the employer's permit entry authorizes Hole Watchman to do so/ *Melakukan penyelamatan dengan memasuki ruangan hanya jika dalam izin kerja, Hole Watchman diberi kewenangan untuk melakukannya.* 4. Know hazards or potential hazard of the confined space/ *Mengetahui bahaya atau potensi bahaya dari confined space.* 5. Maintain accurate count of authorized entrants in the confined space./ *Melakukan perhitungan yang akurat untuk pekerja yang berwenang untuk confined space.*	1. Pass Training CAP :/Lulus pelatihan CAP: *a.* Confined space./ *Confined space*

Position / *Posisi*	Duty & Responsibility / *Peran & Tanggung jawab*	Requirement / *Persyaratan*
	6. Stays alert to possible behavior changing of entrants in confined space./ *Tetap bersiaga terhadap kemungkinan perubahan perilaku pekerja confined space.* 7. Monitors activities inside and outside the confined space until relieved by another attendant and prevents entry of unauthorized personnel./ *Memonitoring aktivitas di dalam dan di luar confined space hingga digantikan dan mencegah masuknya personel yang tidak memiliki ijin.* 8. Communicate with entrant./ *Berkomunikasi dengan pekerja yang masuk.* 9. Order evacuation if undesired or hazardous condition arises./ *Memerintahkan evakuasi jika kondisi yang tidak dikehendaki atau berbahaya muncul.* 10. Ensure all workers enter who enter CSE already pass health check and their ID Card already collected./ *Memastikan semua pekerja yang masuk CSE sudah lolos tes kesehatan dan Kartu ID sudah dikumpulkan.*	

14.3.7. Work supervisor shall closed supervise when work on going.

Supervisor wajib mengawasi secara ketat ketika pekerjaan berlangsung.

14.3.8. Authorized gas tester shall record gas condition as stated in *permit.*

Gas tester yang berwenang wajib mencatat kondisi gas sesuai ijin kerja.

14.3.9. Worker shall pass SHE training and/or competency test refer to point 4.5.

Pekerja harus lulus pelatihan SHE dan/atau tes kompetensi sesuai dengan poin 4.5.

14.3.10. Worker shall use specific identity provided by themself (*Refer to Attachment 6 Worker Identification*).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6 Worker Identification).

14.5. Personal protective equipment for Confined Space as mention in JOHAN/ JSA

Alat pelindung diri untuk di Ruang Terbatas seperti yang tercantum di JOHAN/ JSA

14.4.1. Basic PPE as point 7.1.

APD dasar seperti poin 7.1.

14.4.2. Respiratory protection

Pelindung pernapasan :

14.4.2.1. Air line mask with oil filter to prevent oil containt if used compressor as air supplier. Air line regulator shall be equipped with whistle to indicate no air flow to user

Masker saluran udara dengan filter oli untuk mencegah kandungan oli jika menggunakan kompresor sebagai penyedia udara. Regulator saluran udara wajib dilengkapi dengan whistle untuk mengindikasikan tidak adanya aliran udara ke pengguna

14.4.2.2. Self-Contained Breathing Apparatus (SCBA)

Self-Contained Breathing Apparatus (SCBA)

14.4.2.3. Mask with filter depends on chemical substance SDS

Masker dengan filter tergantung pada SDS senyawa kimia

14.4.3. Other PPE as required in JOHAN/ JSA

APD lainnya sesuai dengan yang tercantum di JOHAN/ JSA

14.5. Method of work, equipment and condition

Metode kerja, peralatan dan kondisi

14.5.1 All work activity shall be permitted from area authority.

Semua aktivitas kerja wajib seizin area yang berwenang.

14.5.2 JOHAN/ JSA shall be submitted, approved and socialized to all worker proved by attendance list.

JOHAN/ JSA harus dikumpulkan, disetujui dan disosialisasikan kepada semua pekerja dibuktikan dengan daftar hadir.

14.5.3 In front lubang of confined space hole shall put sign of confined space sign, if work not held/breaks shall be barricade as mention in point 4.7

Di depan confined space wajib diletakkan tanda area terbatas, jika pekerjaan tidak berlangsung/istirahat wajib dipasang barikade sesuai dengan yang tercantum dalam poin 4.7.

14.5.4 Ventilation, air supply shall adequate.

Ventilasi, suplai udara harus cukup.

14.5.4.1. Ventilation plan shall be established before work in confined space by filling ventilation form plan. (attachment-16). Ventilation plan shall be requirement for CSE permit.

Rencana ventilasi harus dibuat sebelum bekerja di ruang terbatas dengan mengisi Rencana Form Ventilasi (lampiran-16) Rencana ventilasi harus menjadi persyaratan untuk permit CSE.

14.5.5 Illumination shall enough minimum 200 lux at working point. Utilization of lamp is not allowed more than 24 Volt DC (explosion proof)

Penerangan harus cukup minimal 200 lux di titik kerja. Penggunaan lampu tidak diijinkan lebih dari 24 Volt DC (explosion proof)

14.5.6 Electrical equipment shall refer to point 8.2.1.

Peralatan listrik sesuai dengan poin 8.2.1.

14.5.7 Work area shall be emptied, flushed or purged.

Area kerja harus kosong, dibilas atau ditiup.

14.5.8 Line contain hazardous substances shall be disconnected or possitive isolated (blind) and isolation permit shall record and keep with area authority.

Saluran yang mengandung zat berbahaya wajib diputus atau diisolasi positif (blind) dan izin isolasi wajib dicatat dan dijaga oleh area yang berwenang.

14.5.9 If using compressor for respiratory shall oil free and install regulator before mask.

Jika menggunakan kompresor untuk alat bantu pernapasan wajib menggunakan tipe bebas minyak dan menggunakan regulator sebelum ke masker.

14.5.10 All confined space tools and equipment shall pass CAP Tools and Equipment Inspection.

Semua alat dan peralatan confined space harus lulus Inspeksi Alat dan Peralatan CAP

15. Working in The Rain and/ or Lightning[23]

Bekerja di Kondisi Hujan dan/ atau Petir

15.1. During rain and/ or lightning, job matrix below shall be followed:

Selama hujan dan/ atau petir, matriks pekerjaan dibawah ini wajib diikuti:

Table 15.1. Work Matrix during Raing and/ or Lightning

LIGHTNING		RAIN CATEGORY			
Color Indicator	Distance (Miles)	Light Rain/ Moderate Rain		Heavy/ Extremely Heavy Rain	
		Continue	Stop	Continue	Stop
🔵	24 – 40	A,D,E	B,C	E	A,B,C,D
🟡	12 – 24	A,D,E	B,C	E	A,B,C,D
🟠	6 – 12	D,E	A,B,C	E	A,B,C,D
🔴	0 – 6	E	A,B,C,D	E	A,B,C,D

REMARK TYPE OF THE JOB :

A = CONFINED SPACE ENTRY
B = MECHANICAL LIFTING
C = SCAFFOLDING OR WORKING AT HIGH
D = PROCESS AREA WORK
E = INSIDE BUILDING

Rain Category	Intensity (mm/hr)
Light Rain	1 - 5
Moderate Rain	5 - 10
Heavy Rain	10 - 20
Extremely Heavy Rain	> 20

15.2. Lightning will be detected based on Lightning Detector lamp color indicator

Petir terdeteksi berdasarkan indicator warna lampu Pendeteksi Petir

15.2.1. Blue means lightning is in distance 24 – 40 miles

Biru berarti petir berada dalam jarak 24 – 40 mil

15.2.2. Yellow means lightning is in distance 12 -2 4 miles

Kuning berarti petir berada dalam jarak 12 – 24 mil

[23] OSHA Publication 3863: Lightning Safety When Working Outdoor

15.2.3. Orange means lightning is in distance 6 – 12 miles

Jingga berarti petir berada dalam jarak 6 – 12 mil

15.2.4. Red means lightning is in distance 0 – 6 miles

Merah berarti petir dalam jarak 0 – 6 mil

15.1. Below is justification workflow during rain and/ or lightning:

Dibawah ini adalah alur justifikasi selama hujan dan/ atau petir:

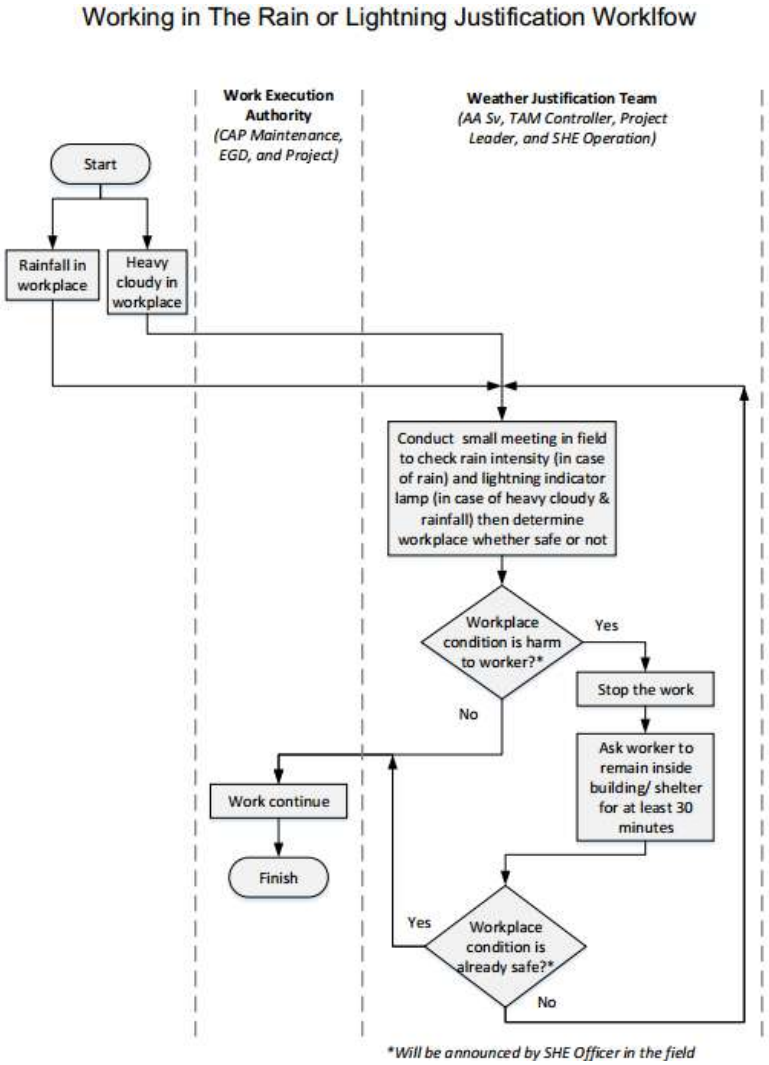


Figure 15.1. Communication Workflow during Raining and/ or Lightning

16. Water Jet

Water Jet

16.1. Worker

Pekerja

16.1.1. Work supervisor shall closed supervise when work on going.

Supervisor wajib mengawasi secara ketat ketika pekerjaan berlangsung.

16.1.2. Authorized gas tester shall record gas condition as stated in *JOHAN/ JSA.*

Gas tester yang berwenang wajib mencatat kondisi gas sesuai JOHAN/ JSA.

16.1.3. Worker shall pass SHE training and/or competency test refer to point 4.5.

Pekerja harus lulus pelatihan SHE dan/atau tes kompetensi sesuai dengan poin 4.5.

16.1.4. Worker shall use specific identity provided by themself (*Refer to Attachment 6 Worker Identification*).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6 Worker Identification).

16.2. Personal protective equipment for Water Jet as mention in JOHAN/ JSA

Alat pelindung diri untuk Water Jet seperti yang tercantum di JOHAN/ JSA

16.2.1. Basic PPE as point 7.1.

APD dasar seperti poin 7.1.

16.2.2. Head protection : Worker shall wear protective head covering both the face, head and eyes.

Pelindung kepala : Pekerja harus menggunakan pelindung kepala melindungi wajah, kepala dan mata.

16.2.2.1. Helmet

Helm

16.2.2.2. Goggles and side shield

Goggle dan side shield

16.2.2.3. Face shield

Face shield

16.2.3. Ear and hearing protection.: Shall be worn by worker because Water Jet makes the noise and reach 90 dBA

Pelindung telinga dan pendengaran : Wajib dipakai oleh pekerja karena Water Jet dapat menghasilkan bunyi dan mencapai 90 dBA

16.2.3.1. Earplugs or earmuffs

Earplug atau earmuff

16.2.4. Body protection: Performance Water Jet may cause serious harm to the body due to water and debris at high pressure were strong then worker shall wear following protection.

Pelindung tubuh : Pelaksanaan Water Jet dapat menghasilkan dampak serius terhadap tubuh karena air dan kotoran pada tekanan tinggi yang kuat sehingga pekerja harus menggunakan pelindung berikut:

16.2.4.1. A concise set covers the entire body.

Satu set pelindung tubuh yang ringkas

16.2.4.2. Made of waterproof material.

Terbuat dari bahan yang tahan air

16.2.4.3. Be strong enough to withstand the reflection of water and debris that was struck.

Kuat untuk menahan pantulan balik air dan kotoran yang dapat mengenainya.

16.2.5. Hand protection

Pelindung tangan

16.2.5.1. Wear gloves Nitrile or Neoprene.

Memakai sarung tangan Nitrile atau Neoprene.

16.2.5.2. Wear rubber gloves Nitrile.

Memakai sarung tangan karet Nitrile.

16.2.6. Foot protection

Pelindung kaki

16.2.6.1. Wear shoes that prevent water and iron debris.

Memakai sepatu yang mencegah air dan serpihan besi.

16.2.6.2. Wear specific safety shoes used for waterjet which has metatarsal protection or use additional metatarsal protection for covering safety shoes.

Memakai sepatu keselamatan khusus untuk waterjet yang yang memiliki perlindungan punggung kaki atau menggunakan perlundungan metatarsal tambahan untuk menutupi sepatu keselamatan.

16.2.7. Respiratory protection

Pelindung pernapasan

16.2.7.1. Mask with filter depends on chemical substa

Masker dengan filter sesuai dengan SDS senyawa kimia.

16.2.8. Fall protection : Water Jet activity may held on high elevation platform more than 1,8 meters and cause worker fall down.

Pelindung jatuh : Aktivitas Water Jet dapat dilakukan pada platform dengan elevasi tinggi lebih dari 1,8 meter dan dapat menyebabkan pekerja terjatuh.

16.2.8.1. Full body harness

Full body harness

16.2.9. Other PPE as required in JOHAN/ JSA

APD lainnya sesuai dengan yang tercantum di JOHAN/ JSA

16.3. Method of work, equipment and condition

Metode kerja, peralatan dan kondisi

16.3.1. Have a hydraulic line pressure rating mark on the line, if not, conduct line pressure test and remark the lines indicated.

Memiliki penanda tekanan hidrolik pada pada selang, jika tidak, lakukan pressure test selang dan beri tanda ulang selang.

16.3.2. Water jet machine shall be equipped with Pressure Relief Valve with set of Pressure Relief Valve is 110% of operating pressure.

Mesin water jet wajib dilengkapi dengan set Pressure Relief Valve dengan set tekanan Pressure Relief Valve adalah 110% dari tekanan operasi

16.3.3. Hose of water jet activity shall be in good condition, not brittle, and have design pressure 150% from maximum operating pressure.

Hose untuk aktivitas water jet harus dalam kondisi baik, tidak getas, dan mempunyai desain tekanan sebesar 150% dari maksimum tekanan operasi

16.3.4. Cover access to a high pressure hose to prevent any damage that may occur from the outside.

Lindungi akses untuk selang bertegangan tinggi untuk mencegah kerusakan yang terjadi dari luar.

16.3.5. Shall provide secondary containment refer to point 5.2.4. To prevent spilled oil flows to the environment. The secondary containment shall be checked to ensure there are not leaking and is in good condition.

Harus menyediakan secondary containment sesuai point 5.2.4. Untuk mencegah tumpahan minyak ke lingkungan. Secondary containment wajib diperiksa untuk memastikan tidak ada kebocoran dan dalam kondisi yang baik.

16.3.6. Water jet work in confined space shall be avoided. If it cannot be avoided, water jet work shall be covered by confined space requirement and permit.

Pekerjaan water jet di confined space harus dihindari. Jika diperlukan, pekerjaan water jet dapat dilakukan dengan dilengkapi persyaratan confined space.

16.3.7. Hazard communication shall be displayed on site

Komunikasi bahaya harus tercantum di tempat.

16.3.8. Waste water shall be treated and prepare to absorb oil or solid filtered from the Water jet before dispose water refer to point 5.3.

Air limbah harus diolah dan mempersiapkan untuk menyerap minyak atau padatan yang dihasilkan dari water jet sebelum membuang air sesuai dengan poin 5.3

16.3.9. Tools shall be installed pressure gauge

Alat harus dipasang pressure gauge

16.3.10. Stop valve shall be operated by dedicated person only

Valve penutup harus dioperasikan oleh orang yang bertugas.

16.3.11. Activity shall be covered use plastic material minimum thickness 0,5 mm.

Aktivitas harus dilindungi dengan material plastik dengan ketebalan minimum 0,5 mm.

16.3.12. One fire extinguisher type 4A40BC shall be provided near engine

Satu pemadam kebakaran tipe 4A40BC harus disediakan dekat mesin.

16.3.13. Safety whip check shall be installed in hose connection from machine to nozzle and nozzle to nozzle and in fully extended position. Safety whip check shall be wire rope

Safety whip check wajib dipasang pada sambungan selang dari mesin ke nozzle, dan nozzle dengan nozzle dan dalam posisi diregangkan penuh. Safety whip check wajib berbentuk wire rope

16.3.14. All high pressure equipment shall be isolated and depressurized before being left unattended.

Semua peralatan tekanan tinggi wajib diisolasi dan dihilangkan tekanannya sebelum ditinggalkan

16.3.15. Water jet equipment shall be earthed before work starts and during operation

Peralatan water jet wajib di grounding sebelum pekerjaan dimulai dan selama aktivitas

16.3.16. All water jet tools and equipment shall pass CAP Tools and Equipment Inspection by Authorized Certified Inspector.

Semua alat dan peralatan water jet harus lulus Inspeksi Alat dan Peralatan CAP oleh Authorized Certified Inspector

16.4. Waste Storage

Penyimpanan Limbah

16.4.1. Contractor shall perform oil separation from water or coke or sludge that occurred before sending it to the CAP Waste Handling Area.

Kontraktor harus melakukan pemisahan minyak dari air atau coke atau sludge yang terbentuk sebelum dikirim ke Waste Handling Area CAP.

17. Chemical Cleaning

Pencucian dengan bahan kimia

17.1. Worker

Pekerja

17.1.1. Provide flagman for material transportation

Menyediakan flagman untuk transportasi material.

17.1.2. Work supervisor shall closed supervise when work on going.

Supervisor wajib mengawasi secara ketat ketika pekerjaan berlangsung.

17.1.3. Authorized gas tester shall record gas condition as stated in *JOHAN/ JSA*

Gas tester yang berwenang wajib mencatat kondisi gas sesuai JOHAN/ JSA.

17.1.4. Worker shall pass SHE training and/or competency test refer to point 4.5

Pekerja harus lulus pelatihan SHE dan/atau tes kompetensi sesuai dengan poin 4.5

17.1.5. Worker shall use specific identity provided by themself (*Refer to Attachment 6 Worker Identification*).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6 Worker Identification)

17.2. Personal protective equipment for chemical cleaning as mention in JOHAN/ JSA

Alat pelindung diri untuk pembersihan dengan bahan kimia seperti yang tercantum di JOHAN/ JSA

17.2.1. Basic PPE as point 7.1

APD dasar seperti poin 7.1

17.2.2. Head protection: Worker shall wear protective head covering both the face, head and eyes.

Pelindung kepala : Pekerja harus menggunakan pelindung kepala melindungi wajah, kepala dan mata.

17.2.2.1. Helmet

Helm

17.2.2.2. Goggles and side shield

Goggle dan side shield

17.2.2.3. Face shield

Face shield

17.2.3. Body protection :

Pelindung tubuh :

17.2.3.1. A concise set covers the entire body.

Satu set pelindung tubuh yang ringkas

17.2.3.2. Use material which strong enough to resist chemical substance as mention in chemical substance SDS

Menggunakan material yang kuat untuk menahan senyawa kimia sesuai dengan SDS bahan kimia.

17.2.4. Hand protection

Pelindung tangan

17.2.4.1. Wear gloves that suitable for the chemical substance as recommended in SDS

Memakai sarung tangan yang sesuai dengan senyawa kimia tersebut sesuai rekomendasi dari SDS

17.2.5. Respiratory protection
Pelindung pernapasan

17.2.5.1. Mask with filter that suitable for the chemical substance as recommended in SDS.

Masker dengan filter yang sesuai dengan senyawa kimia tersebut sesuai rekomendasi dari SDS

17.2.6. Other PPE as required in JOHAN/JSA

APD lainnya sesuai dengan yang tercantum di JOHAN/JSA

17.3. Method of work, equipment and condition

Metode kerja, peralatan dan kondisi

17.3.1. During transportation of material, a red flag shall be installed at the end of the material that is longer than the car

Selama transportasi material, bendera merah harus dipasang pada ujung material yang melebihi panjang mobil

17.3.2. Hazard communication (SDS and GHS label) shall be attached at workplace as communication of the work.

Komunikasi bahaya (SDS dan GHS label) harus ditempelkan di lokasi kerja sebagai komunikasi pekerjaan.

17.3.3. Provide secondary containment according to point 5.2.

Menyediakan penampungan sekunder sesuai dengan poin 5.2.

17.3.4. Provide chemical storage for disposal of waste

Menyediakan penampungan kimia untuk pembuangan limbah

17.3.5. Remaining chemical from the activity shall be removed from the immediate area and conduct waste disposal.

Bahan kimia yang tersisa dari aktivitas harus dipindahkan dari area dan melaksanakan pembuangan limbah.

17.3.6. Install warning signs showing the extent of the work clearly as mention in point 4.6.1.

Mamasang tanda bahaya untuk menandakan pekerjaan secara jelas sesuai dengan yang tercantum dalam poin 4.6.1.

17.3.7. Staff of contractors shall be maintained 24 hours a day and need to coordinate with the CAP if an emergency.

Staff kontraktor harus siap 24 jam sehari untuk melakukan koordinasi dengan CAP jika dalam keadaan darurat

17.3.8. Provide absorbent such as sawdust or sand to absorb only the block boundaries used for spills of chemicals.

Menyediakan penyerap seperti serbuk gergaji atau pasir untuk menyerap tumpahan bahan kimia pada batas-batas blok yang digunakan

17.3.9. Pump for chemical cleaning shall be put inside of dike or on temporary dike which connected to closed ditch

Pompa untuk pembersihan dengan bahan kimia harus diletakkan dalam tanggul atau tanggul sementara yang terhubung dengan closed ditch

17.3.10. Chemical waste generating from chemical cleaning activity shall be managed according to Indonesia regulation for hazardous waste management (PP No. 101 Year 2014).

Limbah kimia yang dihasilkan dari aktivitas chemical cleaning harus dikelola sesuai dengan peraturan Indonesia mengenai Pengelolaan Limbah Bahan Berbahaya dan Beracun (PP No. 101 Tahun 2014).

18. Insulation

Insulasi

18.1. Worker

Pekerja

18.1.1. Worker shall pass SHE training and/or competency test refer to point 4.5.

Pekerja harus lulus pelatihan SHE dan/atau tes kompetensi sesuai dengan poin 4.5.

18.1.2. Worker shall use specific identity provided by themself (*Refer to Attachment 6 Worker Identification*).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6 Worker Identification).

18.2. Personal protective equipment for insulation work as mention in JOHAN/ JSA

Alat pelindung diri untuk pekerjaan insulasi seperti yang tercantum di JOHAN/ JSA

18.2.1. Basic PPE as point 7.1

APD dasar seperti poin 7.1

18.2.2. Hand protection

Pelindung tangan
18.2.2.1. Cotton gloves

Sarung tangan katun

18.2.3. Respiratory protection
Pelindung pernapasan

18.2.3.1. Mask with filter depends on chemical substance SDS.

Masker dengan filter sesuai dengan SDS senyawa kimia

18.2.4. Other PPE as required in JOHAN

APD lainnya sesuai dengan yang tercantum di JOHAN

18.3. Method of work, equipment and condition

Metode kerja, peralatan dan kondisi

18.3.1. Storage of material and waste shall be localized on dedicated place.

Penyimpanan material dan limbah harus ditempatkan pada tempat khusus.

18.3.2. Worker shall not allowed to step on the pipe or pipe with insulation.

Pekerja tidak diperbolehkan menginjak pipa atau pipa dengan insulasi.

18.3.3. Insulation waste generated during activity shall be collected in jumbo bag and bring to CAP Waste Handling Area.

Limbah insulasi yang dihasilkan selama aktivitas harus dikumpulkan di jumbo bag dan dibawa ke Waste Handling Area CAP.

18.3.4. Reused insulation shall be stored and labelled properly for prevent contamination of hidrocarbon or combustible material.

Insulasi yang dapat digunakan kembali harus disimpan dan diberi label yang sesuai untuk mencegah kontaminasi hidrokarbon atau material mudah terbakar.

18.3.5. Waste handling of insulation shall refer to Attachment 4. Waste Management CAP**.**

Penanganan limbah insulasi harus mengikuti Lampiran 4 Waste. Management CAP.

19. Excavation

Penggalian

19.1. Worker

Pekerja

19.1.1. Worker shall pass SHE training and/ or competency test refer to point 4.5.

Pekerja harus lulus pelatihan SHE dan/ atau tes kompetensi sesuai dengan poin 4.5

19.1.2. Worker shall use specific identity provided by themself (*Refer to Attachment 6 Worker Identification*).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6 Worker Identification)

19.2. Personal protective equipment for excavation work as mention in JOHAN/ JSA

Alat pelindung diri untuk pekerjaan penggalian seperti yang tercantum di JOHAN/ JSA

19.2.1. Basic PPE as point 7.1

APD dasar seperti poin 7.1

19.2.2. Hand protection

Pelindung tangan

19.2.2.1. Cotton gloves

Sarung tangan katun

19.2.3. Other PPE as required in JOHAN/ JSA

APD lainnya sesuai dengan yang tercantum di JOHAN/ JSA

19.3. Method of work, equipment and condition

Metode kerja, peralatan, dan kondisi

19.3.1. JOHAN/ JSA shall be submitted, approved and socialized to all worker proved by attendance list.

JOHAN/ JSA harus dikumpulkan, disetujui dan disosialisasikan ke semua pekerja dibuktikan dengan daftar hadir.

19.3.2. Digging activity shall cover with excavation permit.

Aktivitas penggalian harus disertai dengan izin penggalian.

19.3.3. Excavation more than 1.2 meters shall cover with Confined Space permit. WEA shall provide underground cable/ pipe drawing which is used to check the position of cable/ pipe before doing excavation at the site

Penggalian lebih dari 1,2 meter harus disertai dengan izin Confined Space. WEA harus menyediakan gambar kabel/pipa bawah tanah yang digunakan untuk melakukan pemeriksaan posisi kabel/pipa di bawah tanah sebelum dilakukan penggalian di tempat tersebut.

19.3.4. Excavation more than 1.2 m with maximum 30 degree sloping surface, have easy access and not in hazardous area is not categorized as Confined Space

Penggalian lebih dari 1.2 m dengan maksimum kemiringan permukaan 30 derajat, memilik akses yang mudah dan tidak di hazardous area tidak dikategorikan sebagai Confined Space

19.3.5. In Red A area, manual digging minimum 1 meter depth shall be held before using excavation machine.

Di area Red A, penggalian manual dengan kedalaman minimal 1 meter harus dilakukan sebelum menggunakan mesin penggalian.

19.3.6. Depth more than 1 meter shall provide ladder and side of excavation shall cover with shoring or bracing/wall.

Kedalaman lebih dari 1 meter harus disertai dengan tangga dan sisi penggalian harus disertai dengan shoring atau bracing/dinding.

19.3.7. Materials shall place with minimum distance 1 meter from excavation activity.

Material harus diletakkan dengan jarak minimal 1 meter dari aktivitas penggalian.

19.3.8. All excavation activity shall cover with safety sign and cordon of by hard barricade (for depth more than 30 cm) as mention in point 4.6.1. and 4.7.

Semua aktivitas penggalian harus disertai dengan tanda safety dan dikelilingi oleh hard barricade (untuk kedalaman lebih dari 30 cm) sesuai dengan yang tercantum dalam poin 4.6.1. dan 4.7.

19.3.9. The weight load of vehicle or heavy equipment operated shall be located more than 1 meter from edge of excavation.

Beban tumpu kendaraan atau peralatan berat yang dioperasikan harus berjarak lebih dari 1 meter dari tepi penggalian.

19.3.10. Additional brace shall be used when vibration or surcharge loads are a hazard.

Penahan tambahan harus digunakan ketika getaran atau beban tambahan merupakan bahaya.

19.3.11. Walkways or bridges with standard guardrails shall be provided when worker or equipment required to cross over excavation.

Jalan orang atau jembatan dengan pagar standar harus disediakan ketika pekerja atau peralatan diperlukan untuk menyeberang penggalian.

Figure 19. 1 Example of walkway or bridge for excavation in CAP

20. Radiography

Radiografi

20.1. Worker

Pekerja

20.1.1. Worker shall be certified by BATAN.

Pekerja harus bersertifikat oleh BATAN.

20.1.2. Worker shall pass SHE training and/or competency test refer to point 4.5.

Pekerja harus lulus pelatihan SHE dan/atau tes kompetensi sesuai dengan poin 4.5

20.1.3. Worker shall use specific identity provided by themself (*Refer to Attachment 6. Worker Identification*).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6. Worker Identification).

20.2. Personal protective equipment for radiation work as mention in JOHAN

Alat pelindung diri untuk pekerjaan radiasi seperti yang tercantum di JOHAN

20.2.1. Basic PPE as point 7.1

APD dasar seperti poin 7.1

20.2.2. Body protection:

Pelindung tubuh :

20.2.2.1. Film badge/TLD and personal dosimeter

Film badge/TLD dan pendos

20.2.3. Other PPE as required in JOHAN/ JSA

APD lainnya sesuai dengan yang tercantum di JOHAN/ JSA

20.3. Method of work, equipment and condition

Metode kerja, peralatan dan kondisi

20.3.1 Radiation Protection Officer shall be escorted by CAP Team towards and from workplace

Petugas Proteksi Radiasi wajib dikawal oleh Tim CAP menuju dan dari lokasi kerja

20.3.2 JOHAN/ JSA shall be submitted, approved and socialized to all worker proved by attendance list.

JOHAN/ JSA harus dikumpulkan, disetujui dan disosialisasikan ke semua pekerja dibuktikan dengan daftar hadir.

20.3.3 Duration time for normal Radiography Test (RT) at 12:00 – 13:00, 18:00 – 19:00, and 24:00 – 01.00. Out of this time period, Radiography Permit shall be approved by GM or above.

Durasi waktu untuk normal Radiography Test (RT) pada 12:00 – 13:00, 18:00 – 19:00, dan 24:00 – 01:00. Diluar periode waktu ini, Permit Radiography wajib disetujui oleh GM atau diatasnya.

20.3.4 WEA and contractor shall submit mapping radiation area of his activity.

WEA dan kontraktor harus mengumpulkan pemetaan area radiasi dari aktivitasnya.

20.3.5 WEA shall confirm to related department if his RT activity may have impact to other department.

WEA harus mengkonfirmasi ke departemen yang terkait jika aktivitas RT nya memiliki dampak terhadap departemen lainnya.

20.3.6 WEA and contractor conduct clearing location based on RT activity (amount of curie) and ensure no activity that not related with RT during execution period by installing warning decal and safety signs.

WEA dan kontraktor melakukan pembersihan lokasi berdasarkan aktivitas RT yang dilakukan (jumlah curie) dan memastikan tidak ada aktivitas yang tidak terkait dengan RT selama periode eksekusi dengan memasang tanda peringatan dan safety sign.

Figure 20. 1 Warning Decal & Safety Sign for Radiation Activity

20.3.7 WEA and contractor shall ensure his RT tools & equipment inspected by SHE prior and after RT activity.

WEA dan kontraktor harus memastikan alat dan peralatan RTnya telah diinspeksi oleh SHE sebelum dan sesudah aktivitas RT.

20.3.8 Before activity held, Area Authority shall announce with pagging to his area.

Sebelum aktivitas dimulai, Area Authority harus mengumumkan melalui pagging di areanya.

20.3.9 All radiation equipment shall be protected and have valid certificate from BATAN

Semua peralatan radiasi harus dilindungi dan memiliki sertifikat yang berlaku dari BATAN.

20.3.10 Radiation watchman duty, responsibility and requirement

Peran, tanggung jawab, dan persyaratan radiation watchman

Table 20. 1 Radiation Watchman Duty, Responsibility, and Requirement

Position / *Posisi*	**Duty & Responsibility / *Peran & Tanggung jawab***	**Requirement / *Persyaratan***
Radiation Watchman	1. Ensure no other worker on radius 0,2 milirem (unit of radiation dose) before and during activity/*Memastikan tidak ada pekerja lain dalam radius paparan 0,2 milirem (dosis satuan radiasi) sebelum dan selama kegiatan berlangsung.* 2. Ensure hazard communication (lamp, sign, barricade), colimator, and shielding plate, already installed and activated./*Memastikan tanda bahaya (lampu, sign, barikade), colimator, dan shielding plate sudah dipasang dan diaktifkan.* 3. Monitoring radiation exposure used surveymeter/*Memantau hasil paparan radiasi dengan surveimeter*	*1.* Pass Training CAP:/*Lulus pelatihan CAP :* a. Radiation activity/*Aktivitas radiasi*

20.3.11 Radiation watchman shall standby during activity.

Radiasi watchman harus bersiaga selama aktivitas.

20.3.12 Check the work area from the remaining radiation that carried out RT activities after RT done by the worker

Melakukan pengecekan area kerja dari sisa radiasi yang dilakukan aktivitas RT setelah RT dilakukan oleh pekerja.

20.3.13 Radiation activity shall be covered with barricade and safety sign as mention on point 4.6.1. and 4.7.

Aktivitas radiasi harus disertai dengan barikade dan tanda safety sesuai dengan yang tercantum dalam poin 4.6.1. dan 4.7.

21. Pressure Test[24]

Uji Tekanan

[24] ASME Boiler and Pressure Vessel Section VIII Division 1: Rules For Construction of Pressure Vessels

21.1. Pressure Test

Uji tekanan

20.1.1. There are two methods for pressure tests: hydrostatic and pneumatic. A hydrostatic test is performed by using water as the test medium, whereas a pneumatic test uses air or nitrogen.

Ada dua jenis metode uji tekanan: hydrostatic dan pneumatik. Uji hidrostatik dilakukan menggunakan air sebagai media uji, sedangkan uji pneumatik menggunakan udara atau Nitrogen.

21.2. Worker

Pekerja

21.2.1 Pneumatic test is categorized as High Risk Job, so worker shall pass SHE training and/or competency test refer to point 4.5.

Uji Pneumatik dikategorikan sebagai pekerjaan High Risk, sehingga pekerja harus lulus pelatihan SHE dan/atau tes kompetensi sesuai dengan poin 4.5

21.2.2 Worker shall use specific identity provided by themself (*Refer to Attachment 6. Worker Identification*).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6. Worker Identification).

21.3. Personal protective equipment for pressure test work as mention in JOHAN/ JSA

Alat pelindung diri untuk pekerjaan uji tekanan seperti yang tercantum di JOHAN/ JSA

21.3.1. Basic PPE as point 7.1

APD dasar seperti poin 7.1

21.3.2. Other PPE as required in JOHAN/ JSA

APD lainnya sesuai dengan yang tercantum di JOHAN/ JSA

21.4. Method of work, equipment, and condition

Metode kerja, peralatan, dan kondisi

21.4.1 Test pressure set for new pressure vessel and piping system are shown below:

Set tekanan uji untuk bejana tekan baru dan sistem perpipaan ditunjukkan dibawah ini:

System	Code	Hydrostatic	Pneumatic
Boiler – power	ASME Section I	1.5 × MAWP	Not permitted
Boiler – heating	ASME Section IV	1.5 × MAWP	Not permitted
Pressure vessel	ASME Section VIII		
	Division 1	1.3 × MAWP	1.1 × MAWP
	Division 2	1.43 × MAWP	1.15 × MAWP
Power piping	ASME Section B31.1	1.5 × design pressure	1.2 × design pressure
Process piping	ASME Section B31.3	1.5 × design pressure	1.1 × design pressure
Building services piping	ASME Section B31.9	1.5 × design pressure	1.25 × design pressure
Sprinkler system	NFPA 13	200 psi	40 psi

Figure 21.1. Test Pressure Set for new pressure vessel and piping

Test Pressure set for existing pressure vessel and piping system are shown below:

Set tekanan uji untuk bejana tekan dan sistem perpipaan existing ditunjukkan dibawah ini:

Type of Work	Code	Hydrostatic	Pneumatic
Inspection	NBIC	0.9 × SV setting	Agreement between owner and inspector
Alteration	NBIC	1.5 × MAWP	According to original code of construction
Repair	NBIC	1.5 × MAWP	Minimum pressure required verifying leak tightness

Figure 21.2. Test Pressure Set for existing pressure vessel and piping

21.4.2 Pressure gauges which be provided for pressure test shall follow the following requirement:

Pressure gauge yang disediakan untuk tes tekanan wajib mengikut persyaratan berikut:

21.4.2.1 At least two pressure gauges shall be provided

Minimal dua pressure gauge harus disediakan

21.4.2.2 One gauge shall be installed at highest point of piping system to check the test pressure

Satu gauge harus dipasang pada titik tertinggi dari sistem perpipaan untuk mengecek tes tekanan

21.4.2.3 One gauge shall be installed at lowest point of piping system to check the test pressure plus water head

Satu gauge harus dipasang pada titik terendah dari sistem perpipaan untuk mengecek tes tekanan ditambah water head.

21.4.2.4 Range of pressure gauges shall be 2.0 – 3.0 times of test pressure

Jarak pressure gauge harus 2.0 – 3.0 kali tes tekanan

21.4.2.5 All pressure gauges shall be calibrated and certified by vendor or competent person from CAP.

Semua pressure gauge harus dikalibrasi dan bersertifikat dari vendor atau orang yang berkompeten dari CAP.

21.4.3 A Pressure Safety Valve for Pneumatic Test shall be provided as safety measure for excess pressure if test pressure set is 3,5 kgf/cm^2 or above. Set of Pressure Safety Valve is 110 % of the test pressure.

Pressure Safety Valve untuk Pneumatik harus disediakan sebagai alat pengaman jika set tekanan uji adalah 3,5 kgf/cm^2 atau lebih. Set Pressure Safety Valve adalah 110 % dari tekanan uji.

21.4.4 Manifold and hose of hydrostatic or pneumatic test should be passed CAP inspection and have design pressure 150 % from maximum operating pressure.

Manifold dan hose untuk tes hidrostatik atau pneumatik harus lulus inspeksi CAP dan desain tekanan sebesar 150 % dari maksimum tekanan operasi.

21.4.5 Area pressure test shall be barricade as mention in point 4.7.1.

Area tes tekanan harus dibarikade sesuai dengan yang tercantum dalam poin 4.7.1.

21.4.6 Safety whip check shall be installed in hose connection and in fully extended position. Safety whip check shall be wire rope

Safety whip check wajib dipasang pada sambungan dan dalam posisi diregangkan penuh. Safety whip check wajib berbentuk wire rope

21.4.7 Prior activity, Area Authority shall ensure pressure test comply refer to Attachment 11. Pneumatic Test Form

Sebelum aktivitas, Area Authority harus memastikan semua tes tekanan sesuai dengan Lampiran 11. Formulir Pneumatic Test

22. Bypassing Safety Critical Protection[25] (refer to *Standard Operating Procedure by Pass Interlock; EGD-DIV-0028)*

Melakukan Bypass Safety Critical Protection (mengacu pada *Standard Operating Procedure by Pass Interlock; EGD-DIV-0028)*

22.1. Worker

Pekerja

22.1.1. Bypassing safety critical protection shall be conducted by competent personnel

Bypass safety critical protection wajib dilakukan oleh personil yang berkompeten

22.2. Method of work, equipment, and condition

Metode kerja, peralatan, dan kondisi

22.2.1. Hazard which likely occur with bypassing critical protections for maintenance or testing, planned or unplanned, shall be assessed and alternative layer protection shall be provided.

Bahaya yang mungkin terjadi dengan melakukan bypass safety critical protection untuk maintenance atau pengujian, terencana maupun tidak terencana, wajib diukur dan layer protection alternative wajib disediakan.

22.2.2. Prohibited for bypassing, isolating, or removing safety critical protection during upset/ abnormal operating condition in order to maintain production

Dilarang untuk melakukan bypass, isolasi, atau menghilangkan safety critical protection saat kondisi operasi upset/ abnormal dengan tujuan menjaga produksi

22.2.3. Safety critical protection consist of hardware and software which include, but are not limited to, the following:

Safety critical protection terdiri dari perangkat keras dan perangkat lunak yang termasuk, tetapi tidak terbatas pada, alat berikut ini:

22.2.3.1. Shutdown devices (Low-Low Alarm, High-High Alarm, Emergency Shutdown Valve, etc)

Perangkat shutdown (Low-Low Alarm, High-High Alarm, Emergency Shutdown Valve, dll)

[25] Chevron Safe Best Practice: Bypassing Safety Critical Protection

22.2.3.2. Fire and gas detection and fire suppression devices such as fire pumps, deluge systems, fusible loops, CO_2 fire extinguishing systems

Pendeteksi api dan gas, pemadam kebakaran seperti fire pump, deluge system, fusible loops, system pemadam kebakaran menggunakan CO_2

22.2.3.3. Pressure Safety Valve (PSV), Blowdown Valve, and associated valves

Pressure Safety Valve (PSV), Blowdown Valve, dan associated valves

22.2.3.4. Safety critical manual valves that are (normally) locked open or closed

Safety critical manual valves yang (secara normal) locked open atau lock closed

22.2.3.5. Equipment safeguards, over speed trip, flame detectors and similar safety systems

Pelindung peralatan, over speed trip, peralatan pendeteksi api, dan system keselamatan sejenis

23. Diving

Penyelaman

23.1 Worker

Pekerja

23.1.1 Worker shall pass SHE training and/or competency test refer to point 4.5.

Pekerja harus lulus pelatihan SHE dan/atau tes kompetensi sesuai dengan poin 4.5

23.1.2 Worker shall use specific identity provided by themself (*Refer to Attachment 6. Worker Identification*).

Pekerja harus menggunakan identitas spesifik yang disediakan sendiri (Lihat Lampiran 6. Worker Identification).

23.2. Personal protective equipment for diving work as mention in JOHAN/ JSA

Alat pelindung diri untuk pekerjaan diving seperti yang tercantum di JOHAN/ JSA

23.2.1. Basic PPE as point 7.1

APD dasar seperti poin 7.1

23.2.2. Body protection:

Pelindung tubuh :

23.2.2.1. Complete diving tools

Peralatan selam lengkap

23.2.2.2. Work vest/life jacket

Jaket pelampung

23.2.2.3. Lifeline

Tali pengaman

23.2.2.4. Lifebuoy

Pelampung

23.2.3. Other PPE as required in JOHAN/ JSA

APD lainnya sesuai dengan yang tercantum di JOHAN/ JSA

23.3 Method of work, equipment, and condition

Metode kerja, peralatan, dan kondisi

23.3.1. JOHAN/ JSA shall be submitted, approved and socialized to all worker proved by attendance list.

JOHAN/ JSA harus dikumpulkan, disetujui dan disosialisasikan ke semua pekerja dibuktikan dengan daftar hadir.

23.3.2. Diver shall have valid cerficate depends on depth activity.

Penyelam harus memiliki sertifikat yang masih berlaku sesuai dengan kedalaman aktivitas.

23.3.3. Diver shall pass CAP health check (Arrhythmia, temperature, and blood pressure) prior start the work.

Penyelam harus lolos tes kesehatan CAP (Arrhythmia, temperatur, dan tekanan darah) sebelum memulai pekerjaan.

23.3.4. Diving watchman shall stadby during activity.

Diving watchman harus menunggu selama aktivitas.

23.3.5. Allowable time for diving is within 06.00 a.m until 18.00 p.m.

Waktu yang diijinkan untuk aktivitas penyelaman antara 06.00 a.m hingga 18.00 p.m

23.3.6. Ensure diver respirator is oil free or supply of air filtered properly.

Memastikan alat pernapasan penyelam sudah bebas minyak atau sumber udara tersaring dengan baik.

23.3.7. During diving activity worker have to provide:

Selama aktivitas penyelaman pekerja harus menyediakan:

23.3.7.1. Flag alpha

Bendera alpha

23.3.7.2. First aid tools

Peralatan P3K

23.3.7.3. Radio communication between worker and Jetty master (Only for jetty)

Komunikasi radio antara pekerja dan Jetty master (Hanya untuk di jetty)

24. Photograph Activity

Aktivitas Pemotretan

24.1. Photograph activity only can be done by CAP Authorized Photographer licensed by CAP Manufacturing Director.

Kegiatan pemotretan hanya dapat dilakukan oleh orang berwenang dari CAP yang diberi lisensi oleh CAP Manufacturing Director.

24.2. Related General Manager shall submit list authorized photographer attached with letter of understanding for his subordinate to SHE.

General Manager yang terkait harus mengajukan daftar fotografer yang berwenang disertai dengan surat pemahaman untuk semua bawahannya ke SHE.

24.3. All photograph shall pass through approval by CAP's General Manager.

Semua hasil fotografi harus melewati persetujuan oleh General Manager.

25. Life Saving Rules Violation

Pelanggaran Life Saving Rules

25.1. CAP's Life Saving Rules is established base on the believe that "Safety in the Workplace can be achieved only if everyone in the Organization has the basic Safety Awareness and help each others"

CAP Life Saving Rules dibuat dengan keyakinan bahwa "Keselamatan di lokasi kerja dapat dicapai jika setiap orang di organisasi mempunyai kedisiplinan terhadap keselamatan dan mau menolong satu sama lain"

25.2. Classification of violation due to Life Saving Rules specified in CAP's Life Saving Rules Procedure.

Klasifikasi pelanggaran Life Saving Rules tercantum dalam prosedur Life Saving Rules CAP

Table 25. 1 Life Saving Rules in CAP

CAP Life Saving Rules	
 Work with a valid work permit when required/ *Bekerja dengan surat izin yang sesuai*	 Obtain authorization before entering a Confined Space/ *Memperoleh izin sebelum masuk Confined Space*
 Verify Isolation before work begins and use specified life protecting equipment/ *Verifikasi Isolasi sebelum bekerja & gunakan peralatan keselamatan yang sesuai*	 Conduct Gas Test when required/ *Melakukan gas test ketika diperlukan*
 Protect yourself against a fall when working at height/ *Lindungi diri dari jatuh saat bekerja di ketinggian*	 Do not smoke outside designated area/ *Dilarang merokok di luar area yang disediakan*
 Obtain authorization before overriding or disabling safety critical equipment/ *Mendapatkan otorisasi sebelum menonaktifkan atau override safety critical equipment*	 Do not walk under a crane or a suspended load/ *Dilarang berjalan di bawah crane/ beban yang tergantung*

25.3. Condition in the event of violation of Life Saving Rules found during work activity

Kondisi saat ditemukan pelanggaran Life Saving Rules saat aktivitas kerja

25.3.1. Stop work which covered by the same permit number.

Hentikan pekerjaan yang tercakup dalam nomer permit yang sama.

25.3.2. Give briefing about "Life Saving Rules" violation which happened to all worker.

Lakukan penjelasan tentang pelanggaran terhadap Life Saving Rules yang terjadi kepada semua pekerja.

25.3.3. Start the work again after all LSR requirement has already fulfilled and all worker already knew the violation and its countermeasure.

Mulai pekerjaan kembali setelah semua persyaratan LSR terpenuhi dan semua pekerja memahami pelanggaran dan penaggulangannya.

25.3.4. Violator of Life Saving Rules will be handled according to Attachment 12. Life Saving Rules procedure.

Pelanggaran terhadap Life Saving Rules akan ditangani sesuai dengan Lampiran 12. Prosedur Life Saving Rules

26. Safe Manhour Report

Laporan Jam Kerja Selamat

26.1. Safety supervisor have to collect softcopy of his/her company's safe manhour report every week to SHE.

Safety supervisor harus mengumpulkan soft copy laporan progres jam kerja selamat perusahaannya setiap minggu ke SHE

26.2. Format of safe manhour report as below:

Format laporan laporan jam kerja selamat seperti berikut:

JUMLAH JAM KERJA RIIL

TAHUN : ……

PT. CHANDRA ASRI PETROCHEMICAL, Tbk

NO.	BULAN	JML KARYAWAN	JML HARI KERJA	JML JAM KERJA DLM 1 HARI	JUMLAH JAM KERJA RILL (JAM)	JUMLAH JAM LEMBUR RILL (JAM)	JUMLAH JAM KERJA HILANG					GRAND TOTAL JUMLAH JAM KERJA TANPA KECELAKAAN
							CUTI	IZIN	ALPA	SAKIT	JUMLAH	
a	*b*	*c*	*d*	*e*	*f =(c*d*e)*	*g*	*h*	*i*	*j*	*k*	*l= (h+i+j+k)*	*n (f + g - l)*

Figure 26. 1 Progress Safety Report Format[26]

27. Incident Reporting and Investigation Standard (Refer to Procedure No. F2820-P0019)

Standard Incident Reporting dan Investigasi (Mengacu pada Procedure No. F2820-P0019)

27.1. Any accident/ incident/ nearmiss shall be reported to SHE immediately (1 x 24 hours) by everyone who know the occurance of it.

Setiap kecelakaan/ insiden/ nearmiss harus dilaporkan ke SHE dengan segera (1 x 24 jam) oleh semua orang yang mengetahui kejadian..

27.2. Work can be continued after unsafe condition or unsafe action already handled properly.

Pekerjaan dapat dilanjutkan setelah kondisi tidak aman atau tindakan tidak aman telah ditangani dengan baik.

27.3. CAP (SHE, Maintenance and/ or EGD, and related Area Authority) and contractor shall discuss to find root cause of every incident happen in CAP (Refer to Attachment 13. Incident Reporting and Investigation Standard)

CAP (SHE, Maintenance dan atau EGD, dan Area Authority yang bersangkutan) dan kontraktor harus mendiskusikan akar masalah setiap insiden yang terjadi selama di CAP (Lihat Lampiran 13. Incident Reporting and Investigation Standard)

[26] Refer to PERATURAN MENTERI TENAGA KERJA DAN TRANSMIGRASI REPUBLIK INDONESIA NOMOR : PER-01/MEN/I/2007 TENTANG PEDOMAN PEMBERIAN PENGHARGAAN KESELAMATAN DAN KESEHATAN KERJA (K3)

28. Emergency/Ambulance

Keadaan Darurat/ Ambulans

28.1. All CAP/contractor's worker who got personal injury shall go to CAP clinic.

Semua karyawan CAP/ kontraktor yang mendapat cedera personal harus menuju klinik CAP.

28.2. Personal injury classified into:

Cedera personal diklasifikasikan menjadi:

28.2.1. Light injury is related to work injury which does not involve loss of consciousness, restriction of work or motion, or transfer to another job, which met classification as below:

Cedera ringan merupakan cedera akibat kerja yang tidak melibatkan kehilangan kesadaran, pembatasan pekerjaan atau gerak, atau transfer ke pekerjaan lain, yang memenuhi klasifikasi sebagai berikut:

28.2.1.1. Using non-prescription medications at non-prescription strength.

Menggunakan obat non resep pada kekuatan non resep.

28.2.1.2. Administering tetanus immunizations.

Pemberian imunisasi tetanus.

28.2.1.3. Cleaning, flushing, or soaking wounds on the skin surface.

Membersihkan, mencuci, atau membasahi luka pada permukaan kulit.

28.2.1.4. Using wound coverings, such as bandages, gauze pads, etc., or butterfly bandages.

Menggunakan penutup luka, seperti perban, kain kassa, dll. atau perban kupu-kupu.

28.2.1.5. Using hot or cold therapy.

Menggunakan terapi panas atau dingin.

28.2.1.6. Using any totally non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc.

Menggunakan alat pendukung yang tidak kaku, seperti perban elastis, pembungkus, ikat pinggang punggung yang tidak kaku, dll.

28.2.1.7. Using temporary immobilization devices while transporting an accident victim (splints, slings, neck collars, or back boards).

Menggunakan perangkat pencegah gerak sementara sambil mengangkut korban kecelakaan (bidai, sling, kerah leher, atau papan belakang).

28.2.1.8. Drilling a fingernail or toenail to relieve pressure, or draining fluids from blisters.

Pengeboran kuku jari tangan atau kuku kaki untuk mengurangi tekanan, atau pengurangan cairan dari lepuhan.

28.2.1.9. Using eye patches.

Menggunakan tambalan mata.

28.2.1.10. Using simple irrigation or a cotton swab to remove foreign bodies not embedded in or adhered to the eye.

Menggunakan irigasi sederhana atau kapas untuk menghilangkan benda asing yang tidak tertanam dalam atau terdapat di mata.

28.2.1.11. Using irrigation, tweezers, cotton swab or other simple means to remove splinters or foreign material from areas other than the eye.

Menggunakan irigasi, pinset, kapas atau cara sederhana lainnya untuk menghilangkan serpihan atau bahan asing dari daerah lain selain mata.

28.2.1.12. Using finger guards.

Menggunakan pelindung jari.

28.2.1.13. Using massages.

Menggunakan pijatan.

28.2.1.14. Drinking fluids to relieve heat stress.

Minum cairan untuk menghilangkan stress panas.

28.2.1.15. Visits to a doctor or health care professional solely for observation or counseling.

Mengunjungi dokter atau ahli kesehatan semata mata untuk observasi atau konseling.

28.2.1.16. Diagnostic procedures, including administering prescription medications that are used solely for diagnostic purposes.

Prosedur diagnostik, termasuk pemberian obat resep yang digunakan semata mata untuk tujuan diagnostik.

28.2.1.17. Injuries or illnesses that are not work-related are not recordable

Cedera atau penyakit yang tidak terkait dengan pekerjaan yang tidak recordable.

28.2.2. Serious injury is related to work injury which involve loss of consciousness, restriction of work or motion, or transfer to another job, which not classified at point 28.2.1.

Cedera serius merupakan cedera akibat kerja yang melibatkan kehilangan kesadaran, pembatasan kerja atau gerak, atau transfer ke pekerjaan lain, yang tidak memenuhi klasifikasi pada poin 28.2.1.

28.3. For worker who got serious injury, work supervisor / rescue team shall contact medic to carry out worker from Red area using ambulance.

Untuk pekerja yang mendapat cedera serius, supervisor pekerjaan/tim penyelamat harus mengkontak medis untuk membawa pekerja keluar dari Red area menggunakan ambulan.

28.4. Decision for worker who need medical assistance outside CAP shall be from CAP company doctor.

Penentuan pekerja memerlukan bantuan medis di luar CAP berada pada dokter perusahaan CAP.

29. Medical Treatment

Penanganan Medis

29.1. Any worker who need medical assistant have to contact work supervisor.

Setiap pekerja yang memerlukan bantuan medis harus menghubungi work supervisor.

29.2. Contractor shall deliver worker who need medical assistant to CAP clinic.

Kontraktor harus mengantarkan pekerja yang membutuhkan bantuan medis ke klinik CAP.

29.3. Decision for worker who need medical assistance outside CAP shall be from CAP company doctor.

Penentuan pekerja memerlukan bantuan medis di luar CAP berada pada dokter perusahaan CAP.

30. Security

Keamanan

30.1. All worker who work in CAP shall be registered and when entering Red area shall pass daily body inspection from security and other specific check required by CAP (Health Check and Safe Work Permit).

30.2. All tools and equipment which carried in and carried out to/from CAP area shall be covered by Carry In and Carry Out Form (*Refer to Attachment 14. Carry out request procedure*).

Semua alat dan peralatan yang dibawa masuk dan keluar ke/dari area CAP harus disertai dengan Formulir Carry In and Carry Out (Lihat Lampiran 14. Carry out request procedure).

31. Sanitation

Sanitasi

31.1 Contractor prohibited used permanent sanitation of CAP facility at CCR, PCR.

Kontraktor dilarang menggunakan sanitasi permanen fasilitas CAP di CCR, PCR.

31.2 Contractors using sanitation facility where was designed and provided by CAP.

Kontraktor menggunakan fasilitas sanitasi yang didesain dan disediakan oleh CAP.

32. Emergency Response

Respon Darurat

32.1. Contractor shall has emergency structure as below:

Kontraktor harus memiliki struktur emergency sebagai berikut:

Table 32.1 Number of Contractor Emergency Personal

Number of employee	Position	
	Headcount	Emergency Manager
Less than 50	1	1
50-100	2	1
100-150	3	1
150-200	4	1

32.2. Duty, responsibility,and requirement of emergency personal

Peran, tanggung jawab, dan persyaratan personil darurat

Table 32.2 Duty, Responsibility and Requirement of Emergency Personal

Position / *Posisi*	**Duty & Responsibility / *Peran & Tanggung jawab***	**Requirement / *Persyaratan***
Headcount	1. Update worker's name on headcount checklist everyday/ *Memper-barui nama pekerja di daftar headcount setiap harinya.* 2. Count number of worker during emergency./ *Menghitung jumlah pekerja selama keadaan darurat.* 3. Inform count result to CAP authorize person./ *Menginformasikan hasil perhitungan ke karyawan CAP yang berwenang*	1. Headcount can double post with another position during normal operation./ *Headcount dapat merangkap posisi lain saat kondisi normal.* 2. Headcount shall have position min. Supervisor. /*Headcount harus memiliki posisi minimal supervisor.*
Emergency Manager	1. Close communicate with CAP Emergency Manager during emergency by getting update situation and advise what should be done next./ *Berkomunikasi dengan Emergency Manager CAP saat keadaan darurat mendapatkan update situasi dan saran apa yang harus dilakukan.* *2.* Responsible to his/her employee safety during emergency./ *Bertanggung jawab untuk keselamatan pekerjanya selama keadaan darurat.* *3.* Responsible to convey information during emergency for CAP ECC only./*Bertanggung jawab untuk menyampaikan informasi selama keadaan darurat hanya untuk CAP ECC saja.*	1. Emergency Manager shall be Contractor Project Manager. /*Manajer emergency harus merupakan manajer proyek kontraktor.*

32.3. Report during emergency condition

Pelaporan selama kondisi emergency

32.3.1. Used AIN report as report for emergency condition (*Refer to Attachment 13. Incident Reporting and Investigaiton Standard)*.

Menggunakan laporan AIN untuk kondisi emergency (Lihat Lampiran 13. Incident Reporting and Investigaiton Standard).

32.3.2. Headcount data report format shall follow CAP headcount format

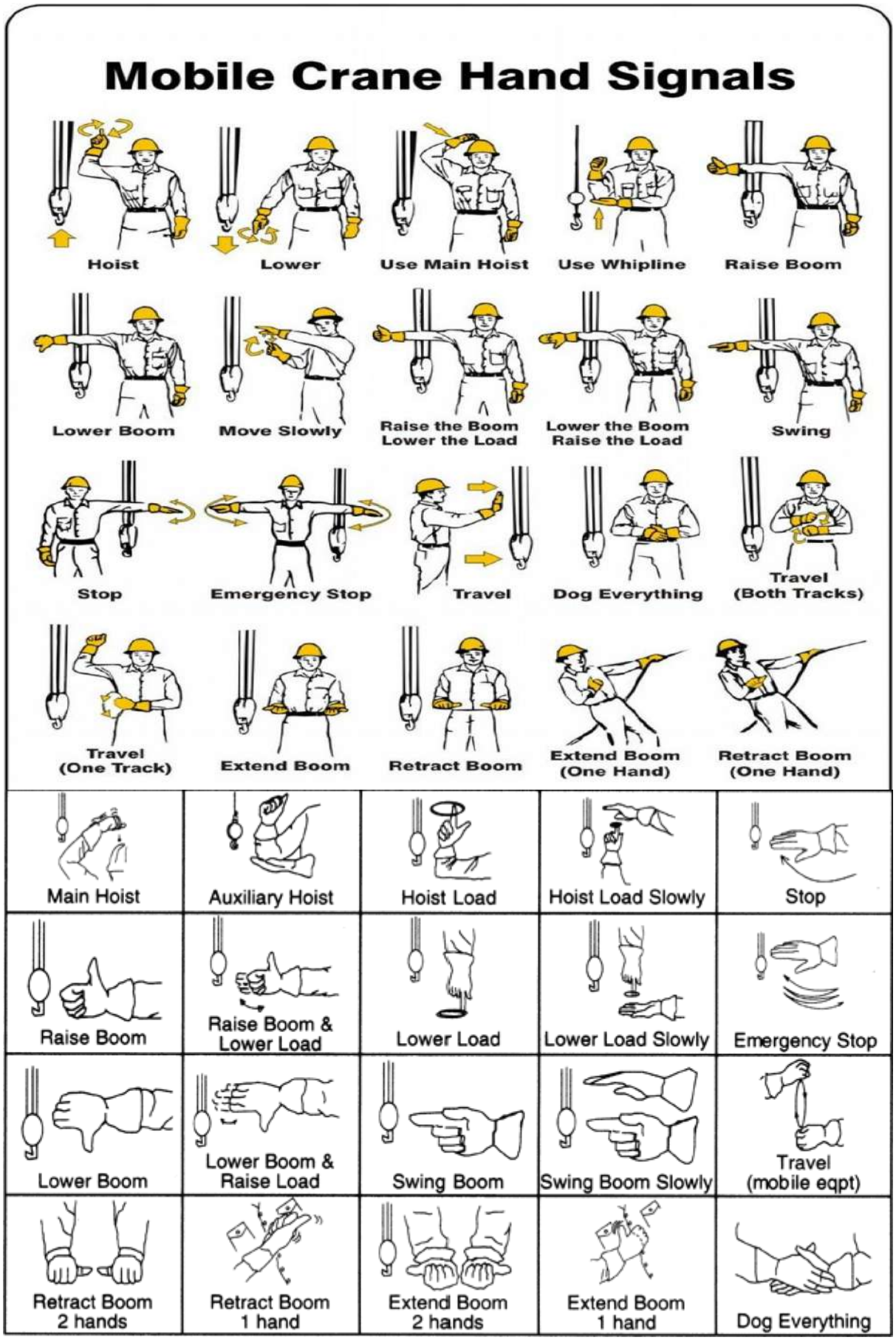
Format pelaporan data headcount harus mengikuti format headcount CAP

Pekerja yang bekerja di CAP harus terdaftar dan ketika memasuki Red Area, wajib lulus pemeriksaan badan dari security dan pemeriksaan khusus lain yang diperlukan oleh CAP (Tes Kesehatan dan Surat Ijin Kerja Aman).


DWG No. E-10
SUNDA STRAIT
JETTY "A"
JETTY "B"
JETTY "C"
SEA WATER INTAKE
SUNDA STRAIT
PN
TN
270°
90°
180°
NOTE
1. ALL DIMENSION ARE IN MILLIMETER UNLESS OTHERWISE NOTED
Hazardous Area*
Non Hazardous
*Refer to CAP Hazardous Plant Lay out
PT. SALAGO
DONG JIN
LOC
ASAHIMAS CHEMICAL
TELKOM
TO ANYER
TO CILEGON
GI 150 kV CAP
NSI LAND
PT. NSI
FLARE STACK
R105400
ORIGINAL SIGNED
PT. CHANDRA ASRI PETROCHEMICAL. Tbk
THIS DRAWING IS THE PROPERTY OF PT CHANDRA ASRI PETROCHEMICAL Tbk. INCLUDING ALL PATENTED AND PATENTABLE FEATURES AND/OR CONFIDENTIAL INFORMATION AND ITS USE IS CONDITIONED UPON THE USER'S AGREEMENT NOT TO REPRODUCE THE DRAWING, IN WHOLE OR IN PART, NOR THE MATERIAL DESCRIBED THEREON, NOR TO USE THE DRAWING FOR ANY PURPOSE OTHER THAN AS SPECIFICALLY PERMITTED IN WRITING BY PT CHANDRA ASRI PETROCHEMICAL Tbk.
SCALE : 1/2000
DWG NO. :
209400
145000
293000
317000
992000
162000

Job Title/Work Activity	Training Topic										
	Safety Orientation	Work Permit	Lifting Activity	Working At Height	Scaffloding & Ladder	Hot Work Activity	Basic Fire Fighting	Confined Space	Basic Electrical	First Aid	Radiation Activity
Skill											
Signalman, Rigger	✓		✓	✓							
Fire Watchman	✓			✓		✓	✓			✓	
Hole Watchman	✓							✓		✓	
Scaffolder/ Scaffolder Helper/ Scaffloder Builder	✓			✓	✓						
Welder/ Pipe Fitter	✓			✓		✓	✓				
Technician	✓			✓		✓	✓				
Mechanic	✓			✓		✓	✓				
Insulation	✓			✓		✓	✓				
Painter	✓			✓			✓				
Electrical	✓			✓			✓		✓		
Sandblasting	✓			✓			✓				
Radiation Activity	✓										✓
Operator											
Crane	✓		✓								
Forklift	✓										
Waterjet/ Pressure Test	✓			✓			✓				
Power Generator	✓						✓				
Safety											
Supervisor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Coordinator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fieldman/ Officer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Leader											
Site/ Area/ Field Leader	✓	✓		✓		✓	✓	✓			
Site/ Area/ Field Coordinator	✓	✓		✓		✓	✓	✓			
Inspector	✓	✓		✓		✓	✓	✓			
Foreman	✓	✓		✓		✓	✓	✓			
Supervisor											
Sr. Engineer/ Engineer	✓	✓		✓		✓	✓				
Site Engineer	✓	✓		✓		✓	✓				
Superintendent	✓	✓		✓		✓	✓				
Managers											
Project Manager	✓	✓									
Site Manager	✓	✓									
Plant Manager	✓	✓									
Other Workes											
Helper	✓										
Housekeeper	✓										
Material Control	✓										
Quality Control	✓										

Hand Method Standard



INDUSTRIAL WASTE DISPOSAL PROCEDURE

Document No.	Revision No.	Revision Date (DD/MM/YY)	Class	Topic	Page No.
EHD-IDP-0002	**05**	**28/02/2014**	**B**	**ENV**	**1 of 5**

APPROVAL

1. WRITER

Name	Position	Signature	Date
Sumartono	Environment Supv.		19/11 2013
S. Darwin	Environment & Health SI		23/12 2013

2. OWNER

Name	Position	Signature	Date
S. Djoko Prabowo	EHD Manager		23/12 2013

3. REVIEWER

Name	Position	Signature	Date
Bambang Sugito	Security Head		9 Jan 2014
Chris Romy	Accounting & Tax GM		29/1/14
R. Tjiptoputro	SHE GM		6/1. 2014
Hendra Gunawan	CNP GM		9/1/14

4. APPROVING AUTHORITY

Name	Position	Signature	Date
Boedijono	Senior GM		27/1 2014
Tira Hendrata	Management Representative		28/2/2014

HISTORICAL OF REVISION

Revision No.	Effective Date	General Description of Revision
0		Original procedure
1		Simplify the revision 0 ; Up-grade from Divisional to be Inter-Divisional procedure and implement new procedure management system
2		Implement to new procedure management system
3		Update the procedure as current condition
4		To combine with OPE & PP Procedure & Simplify procedure
5		To add scope of procedure to cover PBI plant

APPROVED

TABLE OF CONTENTS

APPROVED

1. PURPOSE

To ensure all industrial wastes that's generates by CAP and PBI will be proper treated refer to environmental regulations with traceable impact to environment.

2. SCOPE

This procedure applied to manage wastes disposal process including gate pass approval process and waste document control at PP plant and OPE plant of CAP and BDE plant of PT. PBI.

3. TERMS & DEFINITIONS

Waste Manifest is a mandatory form from government that usually use for controlling hazardous wastes disposal.

Waste Management Company is certified waste management company including transporter, collector and processor.

4. RESPONSIBILITY & DESCRIPTION OF ACTIVITY

A. Waste Disposal Preparation

(a) After get appointed waste collector/processor from CNP, EHD will arrange the schedule of waste disposal to appointed waste processor.

(b) Appointed waste collector/processor shall prepare licensed transporter that will transferring waste to they owned facility refer to the regulation.

(c) EHD will ensure the document of vehicle (permit from Dinas Perhubungan Jakarta) that will be used for transferring wastes still valid and the driver shall have valid driver license and also complete with hazardous wastes manifest.

(d) After document verification complete, EHD will request to SFD for checking vehicle and give orientation to driver refer to SFD Procedure No. SED1-IDP-0036 – Vehicle Entry Permit Into and Out of Red Area-A.

(e) Any vehicle that not completed with valid document and unsafe vehicle will be rejected.

B. Loading Process

(a) EHD will arrange support facilities for loading wastes into the vehicle such as forklift and manpower, except in clean up project.

(b) During loading, Environment Technician shall ensure the type and quantity of waste meet Work Order or Disposal request by CNP.

(c) Transporter shall ensure all wastes that loaded into their vehicle are completed with waste symbol and label.

(d) EHD will prepare summary report of waste disposal based on actual quantity and submit to CNP.

C. Carry Out Request

EHD will prepare Carry Out Request refer to Security Procedure No. SSD-ADV-0003 Carry Out Request Procedure and attached with copy of Work Order or Disposal request by CNP.

D. Waste Manifest filling and Control

(a) Environment Technician will fill Hazardous waste manifest that was prepared by waste transporter / collector / processor.

(b) EHD will get Hazardous waste manifest copy no. 2 and 3. The copy no. 2 will be attached in Waste Balance Report (Neraca Limbah) and keep copy no. 3 as file.

(c) EHD shall ensure to get Hazardous waste manifest copy no. 7, after signed by waste collector or processor and keep its as file.

E. Work Completion Acceptance

(a) Waste processor will prepare invoice and completed with Work Performance Acceptance (WPA) and addressed CAD.

(b) CAD will send copy no.7 of Hazardous waste manifest to EHD.

(c) EHD will fill and sign WPA after received copy no.7 of Hazardous waste manifest.

(d) Completed WPA will send to CNP for further approval refer to CNP procedure.

5. SAFETY & ENVIRONMENTAL ASPECT/IMPACT CONTROL

(Please describe any significant A/I associated in activities of this procedure, or delete this section if it is not applicable)

A/I No.	Activity	Operating Conditions		Significant Safety and Environmental		Prescribed Spec and Corrective/ Prev. Actions
		N	**AN**	Aspect	Impact	
	Loading all waste		✓	Chemical Spill: - Oil & Chemical	Land Pollution (Ground water)	Nil mg/l (a) Table 3 (c)
				Chemical Spill: - Contaminated water	Water pollution	Nil mg/l (a) Table 3 (c)
				Nuisance : - Smell	Health	Mix Odor Can be detected (sensoric) more than 50 % of members (min 8 persons) (c)

(NOTE: N= Normal, AN= Abnormal condition)

APPROVED

No	Activity	Preventive Action	Corrective Action
	Loading all waste	Conducting waste handling training to all employee who has relation with its.	All of waste spill must be picked up as soon as possible and treated as previous waste characteristic.

6. ATTACHMENT

Attachment No.	Title	No. of pages
	None	

7. REFERENCE

Document No.	Title	Location
SHE-DIV-0018	Industrial Waste General Process	Environment Room
SED1-IDP-0036	Vehicle Entry Permit Into and Out of Red Area-A.	SFD
SSD-ADV-0003	Carry Out Request Procedure	SCY
KEP-01/BAPEDAL/09/1995	Degree of Chief of BAPEDAL	Environment Room
KEP-02/BAPEDAL/09/1995	Degree of Chief of BAPEDAL	Environment Room
KEP-03/BAPEDAL/09/1995	Degree of Chief of BAPEDAL	Environment Room
KEP-04/BAPEDAL/09/1995	Degree of Chief of BAPEDAL	Environment Room
KEP-05/BAPEDAL/09/1995	Degree of Chief of BAPEDAL	Environment Room

Special PPE Matrix

Job Discipline	Activity	Apron	Breathing Apparatus/ Airlane	Ear Protection	Face Shield	Full Body Harness (double lanyard)	Gloves (Anti-scratch)	Gloves (Chemical)	Gloves (Cotton)	Gloves (Electrical)	Gloves (Leather)	Hairnet	Laboratorium Suit	Life Jacket	Mask (Dust Min. N95)	Mask (Organic Compound)	Mask (Non-Organic Compound)	Seat Belt	Shoes (with metatarsal guard)	Shoes (Rubber)	Special Suit (Chemical)	Special Suit (Non-chemical)	Special Suit (Fire Resistant)	Special Suit (Sandblasting)	TLD & Pendos	Welding Shield (shall attach with helmet)	
COMMON WORK	Driving in CAP site																	✓										on non fix cabin, mandatory PPE shall applied
	Food Processing							✓*				✓																* Plastic glove
	General Work								✓																			
	Work in Noise area (>85dB)			✓																								Shall use ear plug/muff/both depend on level dB
	Work in Jetty Area or Canal								✓					✓														
	Work with suspended basket					✓			✓																			
	Handling Corrosive material				✓			✓							✓					✓	✓							
	Handling Irritant material				✓			✓												✓	✓							
	Handling HC							✓*							✓*					✓*	✓*							* Depend on substance and condition
	Thermal exposure										✓*											✓						* Thermal protection glove
	Work on temporary platform ≥1.8 m					✓*			✓																			*above 5.5 m shall used absorber lanyard
	Work on dusty area													✓														
MECHANICAL & INSPECTION	Confined Space (CSE)		✓*						✓**																			*If oxygen deficiency shall used breathing apparatus ** Min. standard, can be change if any HC or Chemical
	CSE-Inside Piping		✓**					✓*			✓				✓*					✓***								*depend on substance, if below spec. can be used, ** if deficiency oxygen shall used breathing apparatus,*** Sea water Piping inspection.
	CSE-under N2 blanket		✓																									
	Cutting Torch	✓									✓																✓	
	Water Jet Cleaning				✓			✓											✓			✓						
	Machinery brushing				✓				✓																			
	Machinery cutting and grinding				✓						✓																	
	Machinery drilling								✓																			
	Manual brushing								✓																			
	Manual cleaning on HC content		✓*		✓			✓							✓				✓	✓	✓							* depend on substance
	Manual cutting								✓																			
	Manual drilling								✓																			
	NDT - Penetrant Test								✓					✓														
	NDT - Ultrasonic Test								✓																			
	NDT - Radiograhy Test	✓*							✓																	✓		* for emergency case only, shall be bring to location (appron with PB)
	NDT - Magnetic Test								✓																			
	Rope access					✓*					✓																	* Full body harness shall be used
	Welding at Workshop area	✓									✓																✓	welding shield is not mandatory attach to helmet, please state other condition on JOHAN
	Welding - Gas Metal Arc Welding (GMAW)										✓																✓	
	Welding - Shielded metal arc welding (SMAW)										✓			✓													✓	
	Welding - Underwater		✓																									
	Work at Radio receiver tower					✓*			✓																			* Full Body harness double lanyard shall be used
ELECTRICAL & INSTRUMENT	Puling Cable								✓																			
	Rack in/out									✓																✓		
	Working on offline high voltage								✓																			
	Working on online high voltage (≥380)					✓				✓												✓						
CIVIL & CONSTRUCTION	Chipping				✓				✓																			
	Concrete drilling				✓				✓					✓														
	Concrete work								✓																			
	Diving		✓					✓*												✓*		✓*						* Special PPE for diving standard
	Epoxy flooring							✓							✓					✓	✓							
	Sandblasting		✓																	✓						✓		
	Scaffolding					✓			✓																			
	Hand painting								✓													✓						
	Insulation work								✓																			
	Manual Digging				✓				✓																			
	Roof Work					✓			✓																			
	Sandblasting		✓						✓																	✓		
	Soil investigation								✓																			
	Spray painting								✓						✓													
OPERATIONAL	Dumping powder													✓														
	Fire Fighting				✓																				✓			
	Fire Fighting under vapor cloud/ balck smoke / VOC material		✓		✓																				✓			
	Handling Hot Temperature of HC (heavy oil)				✓						✓*										✓							* Hot temperature glove
	Laboratorium activities with chemical (VOC)							✓				✓	✓			✓												
	Laboratorium activities with non chemical										✓		✓															
	Food Processing											✓																

Note: **Mandatory PPE (Safety helmet, Glasses, Long sleeve, safety shoes) shall be used when work. PPE special is depend on job specification**

Worker Identification

Safety Helmet

Requirement
• Yellow safety helmet is intended for Routine DailyMaintenance Contractor • Blue safety helmet is intended for Project Contractor(less than 6 months work period) • Double strip on helmet should be provided for team leader and single strip should be provided for team member

Team Leader

Member

Vest

Requirement
• Worker vest shall have color same with example and contain position of worker. • Worker vest shall be used for: - Safety Officer - Signalman - Housekeeper - Rigger - Operator - Flagman - Hole Watchman • Vest shall be provided by contractor.

Safety Officer

Hole Watchman

Operator	Signalman	Rigger	Flagman	Housekeeper
				

Worker Identification

Armband

Requirement

- Worker armband shall have color same with example and consist of worker position.
- Worker armband shall be used for:
  - Scaffolder
  - Fire watchman
  - Authorized Photographer
- Armband shall be provided by contractor except for authorized photographer will be provided by CAP.

Scaffolder

Fire Watchman

CAP Authorized Photographer

LEGEND :

▭	RODE WIDE 8 M (PRIMARY ROAD)
▨	RODE WIDE 5 M (SECONDARY ROAD)

REV.	DATE	DESCRIPTION	DSGN	DWN	CHKD	APPR	APPR
0	20-10-14	FOR INFORMATION		AND			

Chandra Asri Petrochemical

PT. CHANDRA ASRI PETROCHEMICAL. Tbk

PROJECT:
TAM – 2015

TITLE :
GENERAL LAY OUT

SCALE :
DWG NO : TAM-2015-001-0
0/0

A0

Chandra Asri Petrochemical

PROCEDURE FOR TOOLS AND EQUIPMENT INSPECTION

Document No.	Revision No.	Revision Date (DD/MM/YY)	Page No.
F2820-P0043	02	15/06/17	1 of 17

APPROVAL

1. PREPARED BY

Name	Position	Signature	Date
Sentot Djoko Prabowo	SHE Technology and Audit Department Manager		17/6/17

2. REVIEWED BY

Name	Position	Signature	Date
Boedijono Hadipoespito	Polymer & Styrene Production Sr. GM (Care taker SHE GM)		23/5/17
Tira M. Hendrata	Management Representative		JUNE 13, 2017

3. APPROVED BY

Name	Position	Signature	Date
Piboon Sirinantanakul	Manufacturing Director	P.Boon S.	15/6/17

APPROVED

PROCEDURE FOR TOOLS AND EQUIPMENT INSPECTION

REVISION HISTORY

Revision No.	Effective Date	General Description of Revision
00	May 27 2012	Original procedure
01	Feb. 1 2016	- additional term and definition - updated responsibility - updated new format - change inspection period
02	June 15, 2017	- Additional Inspection for Lorry/ ISO Tank

APPROVED

PROCEDURE FOR TOOLS AND EQUIPMENT INSPECTION

TABLE OF CONTENTS

PROCEDURE FOR TOOLS AND EQUIPMENT INSPECTION

1. PURPOSE

1.1 To ensure that all tools and equipment used for work in PT Chandra Asri Petrochemical (CAP), PT Styrindo Mono Indonesia (SMI) and PT Petrokimia Butadiene Indonesia (PBI) is safe.

Untuk memastikan bahwa semua alat dan peralatan yang digunakan untuk bekerja di PT Chandra Asri Petrochemical (CAP), PT Styrindo Mono Indonesia (SMI) dan PT Petrokimia Butadiene Indonesia (PBI) aman.

1.2 To prevent tools/equipment which have not been inspected yet are entering into red-area, blue and green within medium-high risk.

Untuk mencegah alat/perlengkapan yang belum diinspeksi oleh Inspektor keselamatan masuk kedalam area merah, biru dan hijau dengan kategori resiko sedang-besar.

2. SCOPE

2.1 All tools and equipment owned by the CAP/ SMI/ PBI and contractor and used to do the job.

Semua alat/perlengkapan yang dimiliki oleh CAP/ SMI/ PBI maupun kontraktor yang hendak digunakan untuk bekerja.

3. BACKGROUND

Tools and equipment used in most of operation, maintanance or other supporting activity. Hence, Procedure for Tools And Equipment Inspection made to eliminate potential of unsafe tools & equipment used in CAP, SMI and PBI.

Alat dan peralatan banyak digunakan dalam kegiatan operasi, perbaikan maupun kegiatan pendukung lainnya. Sehingga, Prosedur Inspeksi Alat dan Peralatan dibuat untuk menghilangkan potensi alat & peralatan yang tidak aman digunakan di CAP, SMI & PBI

4. TERMS & DEFINITIONS

4.1 CAP : PT Chandra Asri Petrochemical Tbk

4.2 SMI : PT Styrindo Mono Indonesia

4.3 PBI : PT Petrokimia Butadiene Indonesia

4.4 AA : Area Authority

4.5 SHE : Safety Health and Environment

4.6 WL : Warning Letter

4.7 **Tool** is usually manual tool such as: hammers, wrenches, screwdrivers and other things like that and usually portable.

Alat *adalah suatu alat bantu kerja manual seperti: palu, kunci pas, obeng dan hal lain semacam itu dan biasanya portable.*

4.8 **Equipment** is a working device powered by electricity,pneumatic or by motors such as: Heavy equipment, vehicle crane, welding machine, grinding,electrical drill etc.

Peralatan/perlengkapan *adalah suatu peralatan kerja yang digerakkan oleh listrik, angin atau dengan motor seperti: alat berat, kendaraan, crane, mesin las, gerinda, bor elektrik, dll sejenisnya.*

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4.9 **Authorized Certified Inspector** (ACI) is CAP employees who have authority and competency to perform safety inspection on tools/equipment according to CAP standard. Electrical equipment shall be perform by Electrical person in-charge, mechanical equipment and heavy equipment shall be perform by mechanical person in-charge, vehicle shall be perform by SHE person in-charge and give the plackat tools and equipment inspection passed. Below is kind of type tools and equipment based on ACI related department/section in-charge:

No	Department In-Charge	Type of Tools	Type of Equipment
1	Mechanical Maintenance/ EGD	- Pneumatic Tools - Lifting gear - Chain saw - Cutting torch - Ladder - Hand drill	- Mobile/Truck Crane - Excavator - Lodder - Unicrane - Vibro - Combine of Heavy equipment - Water jet - Compressor - Air compressor - Forklift
2	Electrical Maintenance/ EGD	- Grind - Electrical lighting - Electrical accessories - Electrical hand drill - Cut-off	- Genset - Electrical panel and appliance - Welding machine
3	Health Safety and Environment Security* *Only for vehicle inspection after office hour, weekend and holiday	- Breathing Apparatus - Fire Extinguisher	- ISO tank - Concrete truck - Common vehicle - Lorry tank truck

All administration document/form of tools and equipment shall be collected by ACI and kept for 2 years before obsolete.

Inspektor keselamatan (ACI) *adalah karyawan CAP yang mempunyai wewenang dan kompetensi untuk melakukan inspeksi keselamatan terhadap alat/perlengkapan sesuai dengan standard CAP. Peralatan elektrik harus dilakukan oleh personnel electric yang ditunjuk.peralatan mekanik dan peralatan berat dilakukan oleh personel mekanik yang ditunjuk, kendaraan diperiksa oleh personel SHE yang ditunjuk .dan memberikan plakat pada peralatan yang lulus inspeksi. Dibawah ini tipe alat dan peralatan berdasarkan ACI dari departemen/section yang bertugas:*

No	Departemen yang bertugas	Jenis alat	Jenis peralatan
1	Mekanik Maintenance/EGD	- Alat yang mengguna-kan angin sebagai penggerak - Alat angkat	- Mobile/Truck Crane - Excavator - Lodder - Unicrane

		- Mesin gergaji - Alat potong dengan menggunakan gas - Tangga - Hand drill	- Vibro - Gabungan Peralatan Berat - Water jet - Compressor - Air compressor - Forklift
2	Electrical Maintenance/EGD	- Gerinda - Electrical lighting - Electrical accessories - Bor elektrik - Cut-off	- Genset - Panel elektrik dan asesorisnya - Mesin las
3	Health Safety dan Environment Security* *Hanya untuk inspeksi kendaraan setelah jam kerja, akhir pekan dan hari libur.	- Alat bantu pernafasan - Alat pemadam api ringan	- ISO tank - Concrete truck - Kendaraan umum - Truk lorry

Seluruh dokumen administrasi/formulir dari pemeriksaan alat dan peralatan harus disimpan oleh ACI yang bertugas dan disimpan selama 2 tahun sebelum dibuang.

4.10 **Tools and Equipment inspection** is an inspection performed by authority people against physical condition and function of tools/equipment.

Inspeksi peralatan *adalah inspeksi yang dilakukan oleh orang yang berwenang pada kondisi fisik dan fungsi dari peralatan tersebut*

4.11 **User** is CAP employee who used service from third parties as vendor or contractor to do their jobs.

Pengguna adalah karyawan CAP yang menggunakan jasa pihak ketiga seperti kontraktor atau vendor untuk mengerjakan pekerjaannya.

4.12 **User inspection** is an inspection performed by the user or owner of tool/equipment during daily usage.

Inspeksi pengguna *adalah inspeksi yang dilakukan oleh pengguna atau pemilik alat/ perlengkapan pada saat pemakaian harian.*

4.13 **Advisor/ expert** is CAP employees who have special skill or competence on that activity.

Penasihat/ ahli *adalah karyawan CAP yang mempunyai keahlian khusus atau berkompeten pada kegiatan tersebut.*

4.14 **Incoming inspection** is an inspection performed by ACI upon tools/equipment that newly come into CAP complex owned by CAP or contractor.

Inspeksi penerimaan *adalah inspeksi oleh inspektor keselamatan terhadap alat/perlengkapan yang baru masuk ke dalam komplek CAP milik CAP ataupun kontraktor.*

4.15 **On service inspection** is an inspection performed by owner toward to tools/equipment that is being used.

Inspeksi pemakaian *adalah inspeksi yang dilakukan oleh inspektor keselamatan terhadap alat/ perlengkapan yang sedang digunakan.*

4.16 **Re-inspection** is the re-inspection of tools/equipment together by the owner/user and ACI, each of the initial period of sticker usage (the period of usage: *every month*.).

Inspeksi ulang *adalah inspeksi kembali alat/perlengkapan yang dilakukan kembali secara bersama-sama oleh pemilik/ pemakai dan ACI, setiap periode awal penggunaan masing-masing sticker (periode penggunaan: Setiap bulan).*

4.17 **Standard Conditions** is the condition of tools/equipment which comply with CAP standard.

Kondisi standar *adalah kondisi alat/perlengkapan yang sesuai dengan standar CAP.*

4.18 **Un-standard condition** is the condition of tools/equipment which doesn't comply with CAP standard.

Kondisi tidak standar *adalah kondisi alat/peralatan yang tidak sesuai dengan standar CAP.*

4.19 **HOLD** is a tools/equipment being hold temporarily due to its inspection status is unclear or minor finding which immediately repair.

HOLD *adalah suatu alat/perlengkapan yang sedang ditahan sementara karena status inspeksi tidak jelas atau temuan kecil yang dapat diperbaiki dengan segera.*

4.20 **Inspected By** on tools and equipment inspection check list is activity perform by ACI.

Diperiksa oleh *pada checklist pemeriksaan alat dan peralatan adalah aktifitas yang dilakukan oleh ACI.*

4.21 **Approved By** on tools and equipment check list is activity perform by minimum supervisor (SV) of ACI.

Menyetujui oleh *pada checklist pemeriksaan alat dan peralatan adalah aktifitas yang dilakukan oleh minimal atasan (SV) ACI.*

4.22 **Safety Inspector** is SHE personnel who responsible for observation work place day to day at field and ensure all condition comply with rule's and regulation.

Safety inspector adalah personel SHE yang bertanggung jawab untuk melakukan observasi setiap hari di area kerja dan memastikan seluruh kondisi memenuhi aturan dan regulasi.

4.23 **Special condition** is condition which has special requirement for do that activity. example : confined space, equipment with non-spark tools requirement.

Kondisi khusus adalah kondisi yang mempunyai persyaratan khusus untuk melakukan aktivitas tersebut. Contohnya ruang terbatas, peralatan yang mensyaratkan untuk menggunakan peralatan yang tidak menimbulkan percikan.

4.24 **Common Vehicle** is a vehicle for used to haul non dangerous material and man haul which not have special license from Disnaker or and KLH.

Kendaraan umum adalah suatu kendaraan yang digunakan untuk mengangkut barang yang tidak berbaya dan manusia yang tidak memerlukan ijin khusus dari Disnaker dan atau KLH.

4.25 **Operational Vehicle** is a dedicated vehicle for support activity inside CAP area (blue and or red area at OPE and or PP plant). If the vehicle using outside decided area, shall inspect as incoming TEIR system.

Kendaraan Operational *adalah kendaraan yang didedikasikan untuk penunjang kegiatan di dalam area CAP (area biru dan atau merah di OPE dan atau PP Plant). Apabila kendaraan tersebut dipergunakan diluar area yang sudah ditentukan maka harus diperiksa kembali sesuai dengan incoming TEIR system*

4.26 **Major Finding** is non-fulfillment of a check list requirement and cannot follow up or repair on that day or a few days (1-3 days) based on compromised with ACI. On repair or follow up time, tools and equipment not allowed used.

Major finding *adalah tidak terpenuhinya persyaratan dari daftar pengecekan dan tidak bisa ditindaklanjuti atau diperbaiki pada hari itu juga atau beberapa hari (1-3 hari) berdasarkan kesepakatan dengan ACI. Pada waktu perbaikan atau tindak lanjut, alat dan peralatan tidak diperkenankan untuk dipergunakan.*

4.27 **Hazardous** area is area where flammable liquids, gases or vapors or combustible dust exist in sufficient quantities to produce an explosion or fire. Hazardous sticker allow for using at hazardous and general area such as process area, flammable tank yard etc.

Area berbahaya adalah area dimana cairan yang mudah terbakar, gas atau uap atau debu yang mudah terbakar keluar pada jumlah yang cukup untuk menimbulkan ledakan atau kebakaran. Stiker hazardous diizinkan untuk digunakan di area hazardous dan general seperti area produksi, area tangki yang mudah terbakar dst.

4.28 **General** area is areas where no potential flammable liquids, gases or vapors or combustible dust exist in sufficient quantities to produce an explosion or fire. General sticker just allow for using general area such as admin building, utilities area etc

Area umum adalah area dimana tidak berpotensi adanya cairan yang mudah terbakar, gas atau uap atau debu yang mudah terbakar keluar pada jumlah yang cukup untuk menimbulkan ledakan atau kebakaran. Stiker general hanya diizinkan untuk dipergunakan diarea general seperti gedung administrasi, area supply utility dst.

5. SAFETY AND ENVIRONMENTAL CONTROL

5.1 SAFETY HAZARD IDENTIFICATION

HIRADC No.	Activity	Operating Conditions		Safety Control		Prescribed Spec and Corrective/ Prev. Actions
		N	AN	Hazard	Consequence	
	N/A					

NOTE: *N= Normal, AN= Abnormal condition*

5.2 ENVIRONMENT ASPECT/IMPACT IDENTIFICATION

A/I No.	Activity	Operating Conditions		Significant Environmental		Prescribed Spec and Corrective/ Prev. Actions
		N	AN	Aspect	Impact	
	N/A					

NOTE: *N= Normal, AN= Abnormal condition*

5.3 PRECAUTION AND MITIGATION

N/A

5.4 PERSONAL PROTECTIVE EQUIPMENT

N/A

5.5 EMERGENCY MANAGEMENT

N/A

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6. ROLES, RESPONSIBILITIES & DESCRIPTON OF ACTIVITY

Roles	Responsible Person(s)	Qualifications
6.1. Owner/ User	6.1.1. Issue Tools and Equipment inspection request to ACI one day before inspection. *Mengajukan permohonan inspeksi alat dan peralatan ke ACI sehari sebelum inspeksi.* 6.1.2. Conduct daily inspection for their tools/ equipment prior used. *Melakukan inspeksi harian terhadap alat/ peralatannya sebelum digunakan* 6.1.3. Repair tools/equipment if got recommendation from ACI *Melakukan perbaikan alat/peralatan jika mendapat rekomendasi dari ACI.*	
6.2. ACI	6.2.1. Inspect tools/equipment based on inspection checklist *Melakukan inspeksi alat/ peralatan sesuai dengan checklist inspeksi* 6.2.2. Put "**SAFETY INSPECTION–PASSED"** sticker on tools/ equipment which pass inspection and put **"SAFETY INSPECTION-REJECTED"** sticker on unsafe tools/ equipment *Memasang stiker "**SAFETY INSPECTION–PASSED"** pada peralatan yang lolos inspeksi dan stiker **"SAFETY INSPECTION-REJECTED"** pada alat/ peralatan yang tidak aman.*	Pass Tools & Equipment Inspection training as ACI *Lolos training Tools & EquipmentInspection sebagai ACI*
6.3. SHE	6.3.1. Conduct on service inspection *Melakukan inspeksi pada saat pemakaian* 6.3.2. Put **"SAFETY INSPECTION-REJECTED"** sticker on unsafe tools/ equipment *Meletakan stiker **"SAFETY INSPECTION-REJECTED"** pada alat/ peralatan yang tidak aman.*	
6.4. Security	6.4.1. Rechek and ensure all tools/ equipment/ vehicle enter red area has valid "**SAFETY INPECTION – PASSED**" sticker from ACI. *Mengecek kembali dan memastikan semua alat/ peralatan dan kendaraan yang masuk ke area merah memiliki stiker "**SAFETY INPECTION – PASSED**" dari ACI yang masih berlaku.*	

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Roles	Responsible Person(s)	Qualifications
6.5. Maintenance Inspection	6.5.1. Inspect lorry/ISO tank's tank as part of vehicle inspection from SHE *Melakukan inspeksi tanki truk lorry/ISO tank sebagai bagian dari inspeksi kendaraan oleh SHE*	

7. DESCRIPTION OF ACTIVITIES

Executor	Description	Remarks
User, minimum technician level	7.1 Incoming Inspection *Inspeksi Penerimaan* 7.1.1 User issue tools inspection form request to ACI. The requisition for inspection must use "Tools/Equipment Inspections Request" form **(attachment-31)** and completed with other supporting documents such as: *Permintaan pemeriksaan harus menggunakan formulir "Tools/Equipment Inspections Request" **(lampiran-31)** dan dilengkapi dengan dokumen pendukung lainnya seperti:* 7.1.1.1 Manual operation or specification of equipment to be inspected **(if any).** *Manual operasi atau spesifikasi alat yang akan diinspeksi **(jika ada).*** 7.1.1.2 Valid certificate and others relevant document refer to law and regulation. *Sertifikat dan surat kelengkapan lainnya yang masih berlaku sesuai dengan undang-undang/peraturan.* 7.1.1.3 Safety Variance request due to some certain reason, forced to be used it, although the tool/equipment have been declared in un-standard condition. ***(reference to Safety Variance Proc.)*** *Permintaan Safety Variance karena suatu alasan tertentu terpaksa harus digunakan, walaupun alat/perlengkapan tersebut sudah dinyatakan kondisi tidak standar **(merujuk kepada Safety Variance Proc.).***	
User, minimum technician level	7.1.2 ACI should have received requisition for inspection, **1 day** (sooner better) **before** tools/equipment is being used and for estimate time of inspection, user/owner can see attachment-45. *ACI harus sudah menerima permintaan inspeksi, **1 hari** (lebih cepat lebih baik) **sebelum** alat/ perlengkapan digunakan dan untuk estimasi waktu inspeksi, pemakai*	

Executor	Description	Remarks
	atau pemilik bisa melihat lampiran-45.	
ACI	7.1.3 ACI will only perform inspection against those tools/equipment listed in the requisition form and have passed inspection by owner with proof on the owner column tools and equipment inspection standard check list is already done. *ACI hanya akan melakukan pemeriksaan terhadap alat-alat / peralatan yang tercantum dalam formulir permintaan dan telah lulus pemeriksaan oleh pemilik dengan bukti pada kolom pemilik dan peralatan inspeksi check list standar sudah dilakukan.*	
ACI	7.1.4 ACI to perform inspection against tools/equipment and to put sticker **"SAFETY INSPECTION"** ***(Attachment-1,*** *"Inspection Sticker Color Coding Scheme).* *ACI melakukan inspeksi terhadap alat/perlengkapan dan menempelkan stiker* ***"SAFETY INSPECTION"*** ***(lampiran-1,*** *"Inspection Sticker Color Coding Scheme).*	
ACI	7.1.5 If tools/equipment are found to be Standard-Condition, put sticker "**SAFETY INSPECTION-PASSED**" and if found to be *Un-Standard Condition* put sticker **"SAFETY INSPECTION-REJECTED".** *Jika alat/perlengkapan ditemukan dalam kondisi-standard, tempelkan stiker* ***"SAFETY INSPECTION–PASSED"*** *dan jika menemukan kondisi-tidak-standard tempelkan stiker* ***"SAFETY INSPECTION-REJECTED".***	
User, minimum technician level	7.1.6 Tools/Equipment with sticker **"REJECTED"** shall be **separated** from the equipment with sticker **"PASSED"** and even if it was in the Red-Area, should immediately be removed to green-area to avoid misuse and create other hazards. *Alat/Perlengkapan dengan stiker* ***"REJECTED"*** *harus* ***dipisahkan*** *dari peralatan dengan stiker* ***"PASSED"*** *dan bahkan jika sedang berada di Area-Merah, harus segera dipindahkan ke area-hijau untuk menghindari kesalahan penggunaan dan menimbulkan bahaya lainnya.*	
ACI	7.1.7 Vehicle inspection for not regular used inside CAP complex will given special placate if passed inspection from safety inspector and be valid one day. Example Lorry tank truck/con-create truck/trailer/common vehicle etc. which have one day operation at CAP complex (see **attachment-1**). *Inspeksi kendaraan yang tidak digunakan secara regular di dalam komplek CAP akan diberikan plakat khusus apabila lolos inspeksi dan hanya berlaku satu hari.*	Info

Executor		Description	Remarks
		*Contohnya truk lorry/concreate/trailer/kendaraan umum dst. Yang beroperasi selama satu hari di komplek CAP (lihat **lampiran-1).***	
ACI & Maintenance Inspection, minimum technician level	7.1.8	Especially for lorry tank truck & ISO Tank inspection, ACI will inspect its truck & tank together with Maintenance Inspection Team 1 day before used in CAP, SMI and PBI. And put sticker "**LORRY/ ISO TANK INSPECTION – PASSED"** if it pass inspection. *Khusus untuk inspeksi truk lorry & ISO Tank, ACI dan tim Maintenance Inspeksi melakukan inspeksi truk dan tangki 1 hari sebelum digunakan di CAP, SMI dan PBI. And put sticker "**LORRY/ ISO TANK INSPECTION – PASSED"** if it pass inspection.*	
Security, minimum group member level	7.1.9	SECURITY at Gate-6 have to check to ensure that all tools/equipment is passed safety inspection before entry Red-Area. *SATPAM di Gate-6 harus selalu memastikan bahwa seluruh alat/peralatan telah lulus pemeriksaan keselamatan sebelum masuk ke Red-Area.*	
Security, minimum group member level	7.1.10	Security at Gate-15 have to always inspect all common vehicle to go into Blue Area. *Security at Gate 15 harus selalu mengecek semua kendaraan kategori umum yang masuk ke Area Biru.*	
SHE, minimum safety officer level	7.1.11	If found the tool/equipment **without sticker** "SAFETY INSPECTION-PASSED, or **with sticker** but the color is different with the designated sticker color and sticker expired, then the tool/equipment should be hold, and put sticker "HOLD" (Attachment-1) and then to contact ACI for inspection. *Jika menemukan alat/ perlengkapan **tanpa stiker** "SAFETY INSPECTION-PASSED", atau **dengan stiker** tapi warna yang berbeda dengan warna yang telah ditentukan dan stiker yang telah kadaluarsa, maka alat/ perlengkapan tersebut harus DITAHAN dan memasang stiker "HOLD" (Lampiran-1), dan menghubungi ACI untuk inspeksi.*	
SHE, minimum safety officer level	7.1.12	Tools and equipment usual used at common condition with "SAFETY INSPECTION-PASSED" but will used on special condition is not allowed without permitted by SHE. *Peralatan/perlengkapan yang biasanya diperuntukkan untuk kondisi secara umum dengan stiker "SAFETY INSPECTION-PASSED" tetapi akan dipergunakan pada kondisi khusus tidak diperbolehkan tanpa izin dari SHE.*	Info

Executor	Description	Remarks
ACI	7.1.13 Every result of inspection (Passed or Hold or Rejected) shall inform and send the inspection report to owner immediately. *Setiap hasil inspeksi (Lulus atau ditahan atau ditolak) harus langsung disampaikan kepada pemilik dan ditulis di formulir inspeksi*.	
	7.2 On Service Inspection *Inspeksi Pemakaian*	
SHE, minimum safety officer level	7.2.1 SHE inspector must inspect and or audit the tool/equipment on spot while used by User. *SHE inspector harus melakukan inspeksi dan atau audit peralatan dilapangan pada waktu peralatan digunakan oleh Pengguna.*	
SHE, minimum safety officer level	7.2.2 If there are un-standard condition and or no conducted on service inspection **(Attachment- 33-44)** by user before used, Safety Inspector will put sticker "**NOT SAFE FOR USE**" or suspend the activity until they full fill regulation. *Jika ada kondisi yang tidak aman dan atau tidak dilakukan pengecekan pada peralatan oleh pengguna sebelum digunakan **(lampiran- 33-44)**, Safety Inspector akan menempelkan stiker "**NOT SAFE FOR USE**" atau menunda pekerjaan sampai mereka memenuhi peraturan.*	
AA, minimum field operator level	*7.2.3* AA shall cross check inspection form on work area. If found equipment not attach with inspection form/not conformity actual condition within check form, AA shall be stop activity and inform to SHE for recheck. *AA melakukan croscek pada form inspection di area kerja. Apabila AA menemukan perlatan tidak terdapat form inspeksi/tidak terdapat kesesuaian antara form dengan kondisi actual, maka AA harus memberhentikan kegiatan dan menginformasikan ke SHE untuk di cek ulang.*	
User, minimum technician level	7.2.4 User must be conducted Daily Inspection to Tool/Equipment before used and fill on daily checklist Tool/Equipment ***(Attachment – 33 - 44)***. *Pengguna harus melakukan Inspeksi harian sebelum peralatan digunakan dan dicatat dalam checklist **(lampiran- 33-44)**.*	
User, ACI/ SHE	7.2.5 If there is *Un-Standard-Condition* found by USER/ OWNER, then it should stop using the tool/equipment and then call Safety-Inspector or ACI for putting sticker **"SAFETY INSPECTION - REJECTED"** ***(Attachment-1).*** *Jika ditemukan sudah tidak dalam kondisi standard, maka harus berhenti menggunakan alat/perlengkapan tersebut*	

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Executor	Description	Remarks
User, minimum technician level	*dan selanjutnya meminta Inspektor-Keselamatan atau ACI untuk menempel stiker **"SAFETY INSPECTION-REJECTED"** **(Lampiran-1)**.* 7.2.6 To separate the tools/equipment that *Un-Standard-Condition* **(REJECTED)** from the tool/equipment in *standard-conditions* and remove immediately to green-area if it was in red-area. *Memisahkan alat/perlengkapan yang tidak dalam kondisi standard **(REJECTED)** dari alat/perlengkapan yang kondisi-standard dan memindahkannya dengan segera ke area hijau jika sedang berada di area-merah*	
User, minimum technician level User, minimum technician level User, minimum technician level ACI ACI, Maintenance Inspection, minimum technician level	7.3 Re-Inspection *Inspeksi Ulang* 7.3.1 Each user / owner must make a request to ACI for re-inspection, of each tools/equipment is going to be used every initial period of usage of each sticker (every month). *Setiap pengguna/pemilik harus melakukan permintaan inspeksi ulang kepada ACI, untuk setiap alat/ perlengkapan yang hendak dipakai pada setiap periode awal penggunaan masing-masing sticker (setiap bulan).* 7.3.2 For re-inspection, repeat the same inspection measures in the incoming-inspection item no 7.1, except for step no. 7.1.2. *Untuk Inspeksi-Ulang sama dengan langkah-langkah pada Inspeksi-Penerimaan pada item no 7.1, kecuali pada langkah nomor.7.1.2*. 7.3.3 Inspection request to ACI must use form *"Tools / Equipment Inspections Request"* ***(attachment-31)*** and **do not need** to attached with other supporting documents. *Permintaan inspeksi ke ACI harus menggunakan formulir "Tools/Equipment Inspections" **(lampiran-31)** dan **tidak perlu** dilengkapi dengan dokumen pendukung lainnya.* 7.3.4 Re-inspection period is every month on date 25 until 31. *Periode pemeriksaan ulang adalah setiap bulan pada tanggal 25 sampai 31.* 7.3.5 Re-inspection for Lorry/ ISO Tank's tank from SHE as ACI & Maintenance Inspection is once per year (January – December), while its vehicle reinspection is every month. *Pemeriksaan ulang untuk tangki Lorry/ ISO Tank dari SHE & Maintenance Inspeksi berlaku sekali dalam 1 tahun (Januari – Desember), sedangkan inspeksi ulang kendaraannya berlaku setiap bulan.*	

Executor	Description	Remarks
SHE, ERL Minimal manager level	7.4 Sanction *Sanksi* 7.4.1 If a CAP employee is found using tools/equipment that have not been inspected (Safety passed sticker) by ACI, then that person must be given Warning-Letter (WL) as stipulated in the Collective Labor Agreement (CLA). *Jika seseorang karyawan CAP ditemukan sedang menggunakan alat/perlengkapan yang belum diinspeksi (stiker safety passed) oleh ACI, maka orang tersebut harus di berikan Surat-Peringatan (SP) sebagaimana diatur dalam Perjanjian Kerja Bersama (PKB).*	
SHE, ERL, User Department Minimal manager level	7.4.2 If contractor employees who perform the violation on item No. 7.4.1, then the CAP employees who supervise the job will be given WL, while the contractor employee will also be given WL according to contract or other binding regulation. *Jika karyawan kontraktor yang melakukan pelanggaran pada item no 7.4.1, maka karyawan CAP yang menjadi pengawas pekerjaan itu akan diberikan SP, sedangkan karyawan kontraktor tersebut juga akan diberikan SP sesuai dengan kontrak kerja atau peraturan lain yang mengikat.*	

8. DEVIATION

8.1. For vehicle inspection, Security on Gate 6 will in charge as ACI only during after office hour, weekend and holiday

Untuk inspeksi kendaraan, Security gate 6 akan bertindak sebagai ACI hanya saat setelah jam kerja, akhir pekan dan hari libur.

8.2. Urgent request of tools & equipment inspection only can be issued by minimum Department Manager level of in charge Department.

Permintaan mendesak untuk inspeksi alat dan peralatan hanya dapat dilakukan oleh minimum level Departemen Manager dari Departemen yang terkait.

9. ATTACHMENT

Attachment No.	Title	No. of pages
1.	Inspection Sticker Color Coding Scheme.	2
2.	F2820-F0023-04 Forklift Inspection Form	1
3.	F2820-F0066-05 ISO Tank Truck Inspection Form	1
4.	F2820-F0067-04 Concrete Inspection Form	1

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Attachment No.	Title	No. of pages
5.	F2820-F0068-04 Unique Crane Inspection Form	1
6.	F2820-F0069-04 Truck/Mobile Crane Inspection Form	1
7.	F2820-F0070-04 Excavator Inspection Form	1
8.	F2820-F0071-04 Lodder Inspection Form	1
9.	F2820-F0072 -04 Vibro Inspection Form	1
10.	F2820-F0073-04 Excavator,Lodder,Vibro & Combine of Heavy Equipment Inspection Form	1
11.	F2820-F0074-04 Common Vehicle Inspection Form	1
12.	F2820-F0075-05 Lorry Tank Truck Inspection Form	1
13.	F2820-F0032-04 Webbing Sling Inspection Form	1
14.	F2820-F0076-04 Metal Sling Inspection Form	1
15.	F2820-F0078-04 Chain Sling Inspection Form	1
16.	F2820-F0079-04 Electrical panel inspection Form	1
17.	F2820-F0080-04 Welding Appliance Inspection Form	1
18.	F2820-F0081-04 Compressor, Genset, Water Jet Inspection Form	1
19.	F2820-F0082-04 Electrical Lighting Inspection Form	1
20.	F2820-F0083-04 Electrical accessories Inspection Form	1
21.	F2820-F0084-04 Chain Saw Inspection Form	1
22.	F2820-F0085-04 Cutting Torch Inspection Form	1
23.	F2820-F0086-04 Cut-Off Machine Inspection Form	1
24.	F2820-F0087-04 Block & Tackle Inspection Form	1
25.	F2820-F0088-04 Hand Drill Inspection Form	1
26.	F2820-F0089-04 Air Compressor Inspection Form	1
27.	F2820-F0090-04 Chain Block Inspection Form	1
28.	F2820-F0091-04 Sackle Inspection Form	1
29.	F2820-F0092-04 Grinder Inspection Form	1
30.	F2820-F0093-04 Ladder Inspection Form	1
31.	F2820-F0065-01 Tools/Equipment Inspection Request Form	1
32.	Work Flow Inspection Tools and Equipment	1
33.	F2820-F0099-00 Fork Lift Daily Check list	1
34.	F2820-F0100-00 Uni-Crane Daily Check List	1
35.	F2820-F0101-00 Concrete Daily Check List	1
36.	F2820-F0102-00 Truck/Mobile Crane Daily Check List	1
37.	F2820-F0103-00 Excavator Daily Check List	1
38.	F2820-F0104-00 Lodder Daily Check List	1
39.	F2820-F0105-00 Vibro Daily Check List	1
40.	F2820-F0106-00 Combine Of Heavy Equipment Daily Check List	1
41.	F2820-F0107-00 Common Vehicle Daily Check list	1
42.	F2820-F0108-00 Lorry Tank Truck Daily Check list	1
43.	F2820-F0109-00 Electrical Panel And Appliance Daily Check List	1
44.	F2820-F0110-00 Welding, Water Jet, Genset, Compressor Daily Check List	1

10. REFERENCES

Document No.	Title	Location
F2811-P0116	Safety Variance	TQM

APPROVED

PP 50 2012	Penerapan Sistem Menejemen Keselamatan dan Kesehatan Kerja	TQM
Per.05/Men/1985	Pesawat Angkat dan Angkut	SHE
SK.725/AJ.302/DR JD/2004	Pengangkutan Bahan Berbahaya dan Beracun	SHE
Kep.187/Men/1999	Pengendalian Bahan Kimia Berbahaya	TQM
F2820-P0092	Loading Unloading Standard for Lorry/ ISO Tank	TQM

11. RELATED FUNCTION(S)

All Department and Section CAP

APPROVED

Chandra Asri Petrochemical

FALL PROTECTION AND PREVENTION			
Document No.	Revision No.	Revision Date (DD/MM/YY)	Page No.
F2820-P0001	03	23/07/15	Page 1 of 7

APPROVAL

1. PREPARED BY

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Name	Position	Signature	Date
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APPROVED

REVISION HISTORY

Revision No.	Effective Date	General Description of Revision
0	20 Mei 2003	Original procedure
1	04 April 2005	Change T&O standard format and control
2	20 Mei 2009	New format
3	23 July2015	New format procedure and numbering system

APPROVED

TABLE OF CONTENTS

1. PURPOSE

To protect employees and contractor from falls by defining the procedure for issuing, using, and inspecting fall protection devices.

Untuk melindungi karyawan dan kontraktor dari jatuh dengan menjelakan pada procedure untuk pemesanan, pemakaian dan pengecekan peralatan pelindung dari jatuh.

2. SCOPE

This procedure applies to all Chandra Asri Petrochemical (CAP) and contractors working in excess of one point eight meters above the ground without protection of standard guardrails, walls, or approved nets.

Procedure ini diaplikasikan kepada seluruh karyawan Chandra Asri Petrochemical dan kontraktor yang bekerja melebihi ketinggian satu koma delapan meter diatas permukaan tanpa pengaman pagar standard, dinding atau jarring yang disetujui.

3. TERMS & DEFINITIONS

3.1 HSE : Health Safety Environment
3.2 CAP : PT Chandra Asri Petrochemical Tbk.
3.3 JOHAN : Job Hazard Analysis
3.4 HIRADC : Hazard Identification Risk Assessment Determine Control
3.5 ACI : Authorized Certified Inspector

3.6 **Fall Protection System** is a system design to protect personnel from the risk of falls when working at height of 1,2 m or greater :

Fall Protection System *adalah suatu system yang dirancang untuk melindungi personel dari bahaya jatuh ketika bekerja diketinggian 1,2 meter atau lebih. Berikut ini beberapa tipe dari fall protection :*

3.7 **Work at Height** is any activity will held of one point eight meter (1,8 m) or greater above ground. Commonly Work at height held on fixed platform and temporary platform.

Work at height adalah segala kegiatan yang dilakukan pada satu koma delapan (1,8 m) atau lebih dari permukaan. Pada umumnya bekerja diketinggian dilakukan pada fixed platform dan temporary platform.

4. RESPONSIBILITY & DESCRIPTION OF ACTIVITY

4.1 Responsibility

Tanggung Jawab

4.1.1 HSE Division shall establish for fall protection specification meet with government regulations, inspect and audit for implementation, train to employee how to use fall protection.

Divisi HSE harus menyusun atau menetapkan spesifikasi dari fall protection sesuai dengan peraturan pemerintah, menginspeksi dan audit untuk pelaksanaan, memberikan training kepada karyawan tatacara untuk menggunakan fall protection.

4.1.2 All employees and contractors are responsible to maintain his/her device to be operable any time. The responsibility will include daily maintenance and inspection.

Seluruh karyawan dan kontraktor bertanggung jawab untuk menjaga peralatannya bisa dipergunakan setiap saat. Tanggung jawab tersebut termasuk perawatan dan pemeriksaan harian.

4.2 PROCEDURE

4.2.1 GENERAL POLICY

Peraturan umum

4.2.1.1 Approved device for work at height at CAP are :

4.2.1.1.1 Scaffolding *(see Scaffolding procedure)*
Scaffolding

4.2.1.1.2 Suspended personnel workbasket *(see Suspended Personnel Workbasket procedure)*
Man basket

4.2.1.1.3 Ladder (see Safety Ladder attachment)
Tangga

4.2.1.2 Approved fall protection device at CAP are

4.2.1.2.1 Full body harness (see full body harness attachment)
Full body harness

4.2.1.2.2 Safety Net (see safety net attachment)
Jaring pengaman

4.2.1.2.3 Fall arrest

4.2.1.3 Prohibited device used for work at height and fall protection are:

4.2.1.3.1 Safety belt/body belt

4.2.1.3.2 Drum
4.2.1.3.3 Non industrial ladder or non-function of ladder

4.2.2 *Procedure*

4.2.2.1 All devices must pass ACI inspection *(refer to procedure tools and equipment inspection), before usage.*

Seluruh peralatan harus lulus inspeksi dari ACI (merujuk pada procedure tools and equipment inspection),sebelum memakainya.

4.2.2.2 All work involving height must be assessed (using JOHAN/HIRADC) before the work commences and supervisor for the work must be on-site throughout the work activity *(refer to permit to work procedure)*

Seluruh pekerjaan diketinggihan harus dinilai resikonya (menggunakan JOHAN/HIRADC) sebelum dimulai dan pengawas pekerjaan berada ditempat ketika pekerjaan berlangsung (merujuk pada permit to work procedure).

4.2.2.3 Any employee or contractor must use full body harness when working on temporary platform/ suspended workbaskets.

Karyawan atau kontraktor harus menggunakan full body harness ketika bekerja di temporary platform atau suspended workbasket.

4.2.2.4 Fall protection device must not be used for any purpose other than their intended usage.

Peralatan pelindung dari jatuh tidak boleh dipergunakan untuk tujuan lainnya selain peruntukannya.

4.2.2.5 Any employee working with stepping ladder is not required to wear full safety body harness but is not allowed to climb more than third raiser from top. If another type of ladder is used, full body harness must be worn during the activity on the ladder.

Seluruh pekerja yang menggunakan Step Ladder tidak wajib menggunakan Safety Full Body Harness dan tidak diperbolehkan untuk naik lebih dari anak tangga ketiga dari atas. Jika menggunakan jenis tangga yang lain harus menggunakan Safety Full Body Harness ketika beraktifitas di anak tangga.

4.2.2.6 Straight, extension, single ladder that are used must be tightly clamped and used per attachment no.1.

Tangga lurus, extension, tunggal ketika dipergunakan harus di klaim dengan kuat dan menggunakan seperti lampiran-1.

4.2.3 SANCTION

Sanksi

Someone who violates the Fall Protection and Prevention Procedure will receive sanction based on “Safety Golden Rules”.

Seseorang yang melanggar Prosedur Fall Protection and Prevention akan menerima sanksi berdasarkan “Safety Golden Rules”

5. SAFETY & ENVIRONMENTAL ASPECT/IMPACT CONTROL

A/I No.	Activity	Operating Conditions		Significant Safety and Environmental		Prescribed Spec and Corrective/ Prev. Actions
		N	AN	Aspect	Impact	
	Fall Protection and Prevention		√	Person	Injury	Work assessment and choosing proper device

(NOTE: N= Normal, AN= Abnormal condition)

6. ATTACHMENT

Attachment No.	Title	No. of Pages
1.	Safety Ladder	3
2.	Full body harness	2
3.	Safety Net	1

7. REFERENCE

Document No.	Title	Location
OSHA 29 CFR 1926	Fall Protection	HSE
OSHA 29 CFR 1926.1053	Stairways and Ladder	HSE
SFS-DIV–0077	Scaffolding procedure	TQM
F2811 – P0089	Suspended Personnel Workbasket	TQM
F2820-P0043-06	Permit to Work System	TQM

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Chandra Asri Petrochemical

SAFE WORK PERMIT STANDARD

Document No.	Revision No.	Revision Date (DD/MM/YY)	Page No.
F2820-P0116	00		1 of 49

APPROVAL

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Name	Position	Signature	Date
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APPROVED

REVISION HISTORY

Revision No.	Effective Date	General Description of Revision
00	29 Jan. 2016	Original procedure

APPROVED

TABLE OF CONTENT

1. PURPOSE

1.1. To supports implementation of Health, Safety and Environment (HSE) disciplines which contains essential elements and represent the foundation for Health, Safety and Environment programs for the PT Chandra Asri Petrochemical Tbk (CAP).

1.2. To analyze all work tasks for proper job preparation and control of hazards.

1.3. To assure proper job planning and communications. It is essentially a checklist which is used as an aid to analysis of job hazards. It must not be assumed that the checklist will cover all possibilities for every job and the checklist is not a substitute for experienced judgment.

1.4. Safe work permits must be issued to cover all forms of maintenance and construction work, unless the job has such a low hazard potential that a permit is not required.

1.5. This standard provides practical guidance on the measures and good practices required to eliminate and minimize the potential for accident, incident, and nearmiss, including people injury, loss of property and environment while working in CAPs' facilities.

2. SCOPE

2.1. Scope of this standard applies to all persons (employee & contractor personnel) to assure consistent safe work permitting. A safe work permit is required for any maintenance, repair or construction work. Permits are generally not required for work performed in office buildings and maintenance shops except for confined space entry and hot work on equipment that has been in service. Cold work performed by Area Authority (AA) personnel does not require a safe work permit.

2.2. This standard shall be applied to all facilities and businesses of the CAP and to those facilities or businesses of its subsidiary and joint venture companies over which CAP has management control, regardless of type, size and product provided.

2.3. Where existing and newly acquired facilities do not meet these requirements due to the nature of an organization and its product, this can be considered for exclusion. Appropriate alternatives to these requirements may be implemented with concurrence and support of the CAP's HSE Technology.

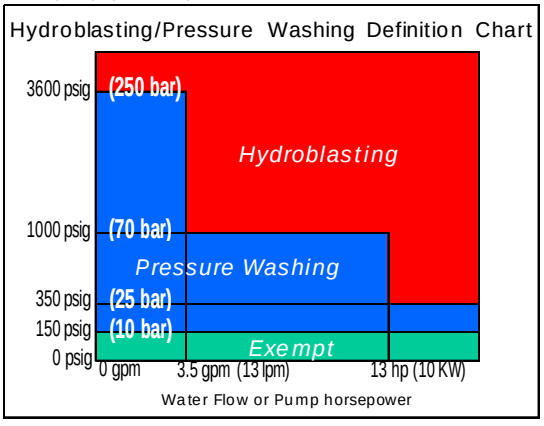
3. Term and Definition

The definition here below is a generic common description of Topic/Subject/Terminology that normally uses in the HSE function. More detail may be found in a specific related document. Registration system is required before create a new definition. It is intended to be applicable to all documents in HSE organization of the CAP.

The terms listed below are used in this document. A definition of these terms can be found in the "HSE List of Definitions".

No.	Topic/Subject/Terminology	Definition / Description
3.1.	One permit system	A cold work permit issued within a defined conditions to allow work on a grouping of closely interrelated or similar pieces of equipment (e.g., groups of exchangers, pumps, vessels and connecting piping, etc.).
3.2.	Cold Work	Any work activity which does not supply sufficient heat or spark energy to provide a potential ignition source for a flammable mixture. This includes general work, scaffolding, cleanup, etc. But vehicle entry and excavation are not classified as cold work.
3.3.	Competent Person	An authorized person who is trained in and is capable of identifying existing and predictable hazards in the

		surroundings, or working conditions which are hazardous or dangerous to employees, and who has authorization to take prompt corrective action to eliminate them.
3.4.	Critical-Lift	A critical lift is defined as a lift if any of the following conditions are met: • Lifting over process equipment or in the process area • The load exceeds 80% of the crane's load chart under lifting conditions • Lifting conditions over power lines • Two booms are required; • The crawler crane would be traveling with the load that poses a hazard under lifting conditions.
3.5	Critical Work	where the ill health of an individual may compromise their ability to undertake a task defined as safety critical, thereby posing a significant risk to the health and safety of others, such as : • Confined spaced • Work at height >1,8 m for temporary platform. • Diving • Build scaffolding
3.6.	Electrical Work	Work on or near electrical equipment and any task that is performed within the Electrical Shock Hazard Distance of energized electrical equipment above 50 volts with live, unguarded parts. This includes diagnostic work, repair work, switching breakers, testing for isolation and verification of de-energization, installation of grounds, the removal/insertion of a fuse, testing and measurement, repairing, replacing, and switching activities. Electrical work also includes any work where the possibility of an electrical hazard exists. Examples are work on or near an electrical installation such as construction, excavation, cleaning, painting, or hoisting, and the use of electrical powered hand tools and other equipment.
3.7.	Fire Watch	A qualified person designated to monitor the area of hot work involving welding or cutting, take appropriate action to reduce risk of fire and if necessary extinguish an incipient stage fire.
3.8.	Hazardous Atmosphere	An atmosphere that may expose entrants to the risk of death, impairment of ability to exit, injury or acute illness from one or more of the following causes: • Flammable gas, vapor or mist in excess of 0 percent of the lower explosive limit (LEL) • Atmospheric oxygen concentrations below 19.5% or in • •

		• excess of 23.5% • Atmospheric concentration of any substance which could result in employee exposure in excess of its permissible exposure limits (PEL) • Any other atmospheric condition that is Immediately Dangerous to Life or Health (IDLH)
3.9.	Health Check	any examination carried out to verify the physical condition of an appliance
3.10.	Hot Tap	The mechanical cutting, drilling, boring, etc. into a line or equipment that is in operation or still contains its original contents.
3.11.	Hot Work	Defined as any work using an open flame, open ignition source, high temperature producing apparatus, or spark producing equipment that could initiate a fire or explosion. Examples of hot work include cutting, welding, burning, soldering, hot tapping/stopping, drilling, grinding, abrasive blasting, chipping, the operation of impact wrenches, the operation of electronic or internal combustion engine which is not certified for use in the area or electrical equipment that is not intrinsically safe, opening explosion proof electrical enclosures and any other work that may generate sufficient heat that it would pose a possible ignition source.
3.12.	Hydro-blasting	The use of pressurized water sprayed at more than the Hydroblasting Trigger Point from the tip. The Hydro-blasting Trigger Point is 3600 psig (250 bar) provided that the flow is less than 3.5 gpm (13 liters/minute), or 1000 psig (70 bar) if the flow is greater than 3.5 gpm (13 liters/minute) or when the pump capacity exceeds 13 HP (10 kW) at a pressure of greater than 350 psig (25 bar). 
3.13.	Job Safety Analysis (JSA)	JSA is a systematic and step-by-step review of all elements of risk and is carried out prior to a specific task or operation so that measures can be taken to remove or control any elements of risk identified during the preparation for or performance of the said task or operation.

3.14.	Line Break	The intentional opening of a process system that may contain flammable, corrosive, or toxic material or a material under pressure or temperature such that an unplanned opening of the system may result in injury to workers. Examples include spreading flanges, opening exchangers, pulling pumps, cold cutting pipe, etc. Line break, depending on equipment used, could be cold work or hot work.
3.15.	Line & Equipment Opening	The act of opening a process or a part of a process to the atmosphere. The removal or opening of equipment when that equipment is still connected to the process in any manner. A line or equipment opening begins when there is an effort to break the normal operating containment of the system (for example: at the point when the first bolt is loosened on a flange, or the first latch is opened on a centrifuge lid). A line or equipment opening ends when the line or equipment is opened (examples: when all of the bolts on a flange have been removed and an air gap is seen or the centrifuge lid is opened), is confirmed to be depressurized, cleared of contents to acceptable levels (examples: any suspected blockages cleared, any low spots drained of material, all drain valves open, all residues cleared to acceptable levels, etc.) and that the isolating devices are confirmed to be isolating the energy sources.
3.16.	Operations Personnel	CAP employees assigned to a specific work area, trained as to the safe operations and the hazards of the area, and are responsible for the day to day operations of that area.
3.17.	Owner	The AA (manager/supervisor) representative who is recognized as having operational control for a specific piece of equipment.
3.18.	Permit System	An overall program for controlling, and where appropriate, for protecting employees from hazards and for regulating employee entry into confined spaces. The system is a written procedure for preparing and issuing permits for entry into confined spaces and for returning the confined space to service following termination of entry. The permit system includes the confined space entry checklist, the safe work permit and the attendant's log.
3.19.	Permit Preparer	The permit preparer will be responsible to perform permit request section. Work Planner can be Permit preparer. Preparer means authorized personnel who responsible for the job. This limited to CAP's employees for the works that need to be done on site.
3.20.	Permit Receiver or Work Executor Authority (WEA)	The person representing the work crew (executor of each job) who responsible for representing the work crew in the Safe Work Permitting process. Signing the Safe Work Permit and hand over the original to Work/job supervisor. Work /Job supervisor can be WEA.
3.21.	Permit Approver or Permit Issuer	The person from AA who responsible in the Safe Work Permitting process. He / She is responsible for approval

		(granting) the permit. The list of authorized person for each type of permit shall be identified, communicated and maintained, regularly updated and posted visible for people.
3.22.	Pressure Washing	The use of mechanically generated pressurized water sprayed at pressures greater than 150 psig (10 bar), but less than the Hydroblasting Trigger Point from the tip
3.23.	Permit Work Process	The process by which a Safe Work Permit is issued, used and then closed and signed-off.
3.24.	Safeguard Critical to Life	Any device designed to prevent personnel from coming in contact with a potentially life threatening hazard. Examples may include but are not limited to: Machine guards, safety interlocks, emergency stops, building grounds, ground fault circuit interrupters, guardrails, handrails, grating, critical instruments, safety valves, fall protection anchor points, lifelines, breathing air systems, etc
3.25.	Safe Work Certifier	A company employee, who obtained intensive Safe Work Permit training for Permit Certifier that related to specific type of permit. The authority is given to verify (by on-site inspection) all requirements of Work Permit standard are met and established that it is safe for work to proceed.
3.26.	Safe Work Permit	An agreement (written authorization) between the Personnel Issuing Permit (issuer) and Work supervisor (receiver) that documents the conditions, preparations, precautions, and limitations that need to be clearly understood before work begins. The permit ensures that all foreseeable hazards have been considered and that the appropriate precautions are defined and carried out in the correct sequence. The permit shall ; • Provides for a review of work activities to appropriately address environmental, health and safety concerns. • Communicates and documents the scope of work. • Communicates the hazards of the area, the work to be done, and the safeguards that are in place to remove or minimize those hazards. • Restricts access to work and/or equipment to people who have the appropriate skills and required training and have been informed of the hazards and safeguards of the work and/or equipment.
3.27.	Testing	The process by which the hazards that may confront personnel performing hot work, vehicle entry, or authorized entrants of a confined space are identified and evaluated.For example gas test or temperature test, etc.
3.28.	Vehicle Entry	The entry of any motorized vehicle into the battery limits of a process unit, inside tank farm diked areas, or other

		restricted areas.
3.29.	Work Planner	The CAP's employee who has been assigned to prepare and organize for a job to be done. He is responsible to allocate the required resources, to make available the required materials and spare parts and to check if any special requirements are applicable for a work. The function /department leader will assign employees that are qualified to act as Work Planner.
3.30.	Work / Job Supervisor	A knowledgeable person in charge for a specific job that the works will be done according to applicable procedures and with the correct usage of tools. The job supervisor will organize and manage the safeguarding systems those required for the permit. Job supervisor could be the same person as permit preparer.

4. RESPONSIBILITY & DESCRIPTON OF ACTIVITY

4.1. Responsibility

4.1.1. **Manufacturing Director**

4.1.1.1. Compliance against this standard requirement is direct responsibility and is important measures of managerial performance.

4.1.1.2. Ensure all facilities must be designed and operated in accordance with this standard.

4.1.1.3. Need to ensure that sufficient resources essential to the establishment implementation and maintenance of the Safe Work Permit.

4.1.1.4. Ensure that the Safe Work Permit process is audited and compliance with CAP & Indonesia's regulation is essential.

4.1.2. **HSE Manager**

4.2.2.1. Provide appropriate training for employee who involved in safe work permit standard.

4.2.2.2. Ensure safe work permit standard audit conduct minimal twice (2) per years and report to manufacturing director.

4.2.2.3. Evaluate safe work permit still updated with local regulation and relevant with plant site condition.

4.1.3. **AA managers**

4.1.3.1. To ensure the procedure is in place and working that applied consistently to all facilities.

4.1.3.2. To review and evaluate Safe Work Permit programs and resulting performance at defined intervals to ensure fully compliance against CAP & Indonesia's regulation.

4.1.3.3. Ensure actual work is in accordance with Safe Work Permit standard.

4.1.3.4. Provide appropriate training for persons involved in Safe Work Permit.

4.1.3.5. Maintain a status list of all qualified persons involved in Safe Work Permit.

4.1.3.6. Delegate authority to, document, and maintain the list of those people that are authorized to be Issuer / Approver for a Safe Work Permit.

4.1.4. **Functional leader (Manager & Supervisor)**

4.1.4.1. Designate and document CAP's personnel who may issue Safe Work Permits.

4.1.4.2. To approve a Safe Work Permit for the routine & repetitive.

4.1.4.3. To ensure that each job incorporates the Safe Work Permit programs and fully implementation of its operating procedure before allowing start working.

4.1.4.4. Provide a work environment with proper equipment and adequate training.

4.1.4.5. Enforce each job done by contractor shall follow the same standard.

4.1.4.6. Make the decision as to when a work (job) in the area " NOT " requiring permit.

4.1.4.7. Establish a mechanism to ensure that Safe Work Permit documents are retained according to document control procedure.

4.1.4.8. When there is a question, decide whether or not Safe Work Permit Standard will be followed. Experts from HSE Technology shall be contacted.

4.1.5. **Individual**

4.1.5.1. Employee /Contractor have the right to stop an unsafe work or unsafe action of individual to prevent accident from Working.

4.1.5.2. Obtained Safe Work Permit training if applicable for job.

4.1.5.3. Wear appropriate personal protective equipment.

4.1.6. **Shift Supervisor/Permit Issuer**

4.1.6.1. Be an area owner representative & hold authorization to approve a permit in the area.

4.1.6.2. Obtained Safe Work Permit training for Permit Approver that related to specific type of permit.

4.1.6.3. Ensure requirements of this standard are met and establish that it is safe for work to proceed.

4.1.6.4. Confirm that all precautions or protective equipment has been properly carried out and maintained.

4.1.6.5. Signing the Safe Work Permit and retain a copy of permit in the office accessible for shift operators.

4.1.6.6. Ensure all permits are active till close out with smooth handover if himself need to leave the site.

4.1.6.7. Signing Closing permit

4.1.7. **WEA (Permit Receiver)**

4.1.7.1. Executor of each job (be representative of the job) who prepares the permit and accompanies the permit approver during the on-site inspection.

4.1.7.2. Obtained Safe Work Permit training that related to specific type of permit.

4.1.7.3. Hazard reviewer of the job and the area with the Permit Approver.

4.1.7.4. Verify crew members need to know or understand to commence the work.

4.1.7.5. Signing the Safe Work Permit and hand over the original to Work/job supervisor.

4.1.7.6. Ensure the work is performed according to established safe work practices and the conditions specified in the Permit.

4.1.7.7. Report to the Permit Approver all changes in conditions that affect the safety of the job.

4.1.7.8. Request a new or renewed permit in the event of permit canceled or suspended and close out when the job is completed.

Caution: Any critical work shall be passed health check

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4.1.8. **Safe Work Certifier**

4.1.8.1. Be an area owner representative and hold authorization to approve a permit in the area.

4.1.8.2. Obtained "Safe Work Permit training for Permit Certifier" that related to specific type of permit.

4.1.8.3. Ensure requirements of standard work permit are met and establish that it is safe for work to proceed.

4.1.8.4. Confirm that all precautions or protective system has been properly carried out and maintained.

4.1.8.5. Signing the Safe Work Permit at work location to allow work to start.

4.1.8.6. Ensure all permits are active till close out with smooth handover if himself need to leave the site.

4.1.8.7. Check work location during closing permit after work finished to ensure work is completed and/or left in a safe condition and WEA perform cleaning the area.

> **Caution**: Approval or certification of item in the work permit without the actual checking action is violate the Life Saving Rules.

4.1.9. **Work / Job Supervisor**

4.1.9.1. Ensure the area owner fully understands the scope of the work to be done and estimate number of work crew to be used.

4.1.9.2. Obtain permits and review to accept the permit terms and restrictions prior to starting work.

4.1.9.3. Ensure that all members of the work crew review the permit requirements. The work crews understand in their work scope and aware of the relevant chemicals and process hazard information for the area in which they are working.

4.1.9.4. Ensure proper use of safeguarding / personal protective equipment (PPE) and is in proper working conditions.

4.1.9.5. Determine the type or method of communication used between people involved the job.

4.1.9.6. Ensure that all work carried out by his work crew is covered by valid permits.

4.1.9.7. The permit is accessible at the job site at all times while the job is underway.

4.1.9.8. Ensure that the work described in the permit is completed and/or left in a safe condition prior to leaving the work area, including cleaning the area up.

> **Caution**: Approval or certification of item in the work permit without the actual checking action is violate the Life Saving Rules.

4.1.10. **Fire Watchman**

4.1.10.1. Have NO OTHER RESPONSIBILITIES that would interfere with his/her reliably fulfilling fire watch duties.

4.1.10.2. Maintain vigilance for changes in area or work conditions that may increase the chance for a fire or explosion and stopping work accordingly.

4.1.10.3. Have a charged water hose or fire extinguisher available and extinguish incipient fires that may start as the result of hot work being performed. The area must be kept wet/damp at all times if required by the permit.

4.1.10.4. When exposed combustibles (wood, paper, rags, dry grass, etc.) are present within 10 meters of the work area fire watch can only leave the area after hot work has been stopped for thirty (30) minutes or a relief attendant has been obtained.

4.1.11. **Hole watchman**

4.1.11.1. Does not enter the confined space

4.1.11.2. Prepare to perform non-entry rescue or call for a rescue team for entry rescue

4.1.11.3. Perform entry rescue only when the employer's permit entry program authorizes attendant to do so.

4.1.11.4. Know the hazards of the confined space.

4.1.11.5. Maintains accurate counting of authorized entrants in the confined space.

4.1.11.6. Stay alert to possible behavioral change of entrants.

4.1.11.7. Monitor activities inside and outside the confined space until relieved by another attendant and prevents entry of unauthorized personnel.

4.1.11.8. Do communication with entrants.

4.1.11.9. Instruct evacuation when danger condition arises.

4.1.12. **Permit Auditor**

4.1.12.1. Perform Safe Work Permit system audit twice a year.

4.1.12.2. Report audit result to Manufacturing Director

4.2. Description of Activity

4.2.1. **Enforcement**

Any CAP's employee who fails to follow this procedure will face disciplinary action in accordance with Life Saving Rules policy and Collective Labour Agreement of CAP.

4.2.1.1. **Fail to follow Safe Work Permit Procedure**

Fail to follow Safe Work Permit is a severe violation and plant is potentially in the very high-risk situation. The following activities will be classified as "Fail to Follow Safe Work Permit".

4.2.1.1.1. Work without permit

4.2.1.1.2. Delegate authority to non-qualified person

4.2.1.1.3. Approved a permit without authority or qualification is not met

4.2.1.1.4. Job supervisor leave the site without notice when on duty

4.2.1.1.5. Certify for operation check or safety check without actual checking

4.2.1.2. **Work without permit**

The following activity will be classified as "Work without permit";

4.2.1.2.1. Work without permit at all.

4.2.1.2.2. Start work before permit approval.

4.2.1.2.3. Continue work after permit expired

4.2.1.2.4. Work differently from Work described in the permit.

4.2.1.2.5. Work in the area outside where has been approved in the permit.

4.2.1.2.6. Maintain working during Emergency announcement or alarm.

4.2.1.2.7. Work done by different person who has been approved in the work permit.

4.2.2. **Key Elements**

4.2.2.1. **Recognition to Apply Safe Work Permit**

Functional leader i.e. manager & supervisor of each facilities shall review their facilities and ensure that people can easily recognize to apply a Safe Work Permit prior job/work commenced. This shall be reviewed and updated, as necessary or every three years.

4.2.2.1.1. **Works that should require a Safe Work Permit**

Tasks that require permission to work with two types:

4.2.2.1.1.1. Any Work that works by other people from outside the area

All works within a block limits of the facilities if it is done by people who doesn't report to the manager of the area are identified as: "Works that should require a Permit to Work".

4.2.2.1.1.2. Danger work or Hazardous or high risk of severe accidents

As the following PT Chandra Asri Petrochemical Tbk. defined as hazardous or high risk of severe accidents ("Danger work").The Worker will "have to ask permission to work" in all cases without exception, the people from both inside and outside the given entities.

The following items are classified as "Danger work". Permit to Work is always required.

4.2.2.1.1.2.1. Hot work class I in Hazardous Area
4.2.2.1.1.2.2. Confine space entry work
4.2.2.1.1.2.3. Over than 380 Volts related electrical work including laying of temporary power cable.
4.2.2.1.1.2.4. Instrument electrical work 24V up to 220V
4.2.2.1.1.2.5. Depth > 15 centimeters for excavation work.
4.2.2.1.1.2.6. Diving work
4.2.2.1.1.2.7. Working at height > 1,8 meters at temporary platform
4.2.2.1.1.2.8. Radiography work
4.2.2.1.1.2.9. Critical Lifting work (refer to 3.4)
4.2.2.1.1.2.10. Pressure Washing over 100 barg
4.2.2.1.1.2.11. Blocking or closing road access more than 30% width of road
4.2.2.1.1.2.12. Loading of strong acid or strong basic using truck (even is the routine work by operation but still need work permit).
4.2.2.1.1.2.13. Others work that PT Chandra Asri Petrochemical Tbk further defined as work that is dangerous or illegal. There is a risk of severe accidents (Danger work).

4.2.2.1.2. **Work That "DO NOT require a Safe Work Permit"**

4.2.2.1.2.1. An activity inside your area of operational control that is not listed for permit required.
4.2.2.1.2.2. An activity that is specifically listed on the facilities list of activities that do not require a Safe work permit
4.2.2.1.2.3. Routine work in maintenance shop does not require permit but Maintenance Supervisor or Engineer will apply the same general practices to ensure safe work of non-routine work.

4.2.2.1.3. **Work requires permit**

4.2.2.1.3.1. Safe Work Permit is required for all works within the block limits of the facilities if it is done by people who is not subordinate of area manager. But manager of the area shall approve exception.

4.2.2.1.3.2. Safe Work permit is required, in case of Hot Work and confine space entry
which will be done by operations.

4.2.2.1.3.3. Safe Work permit is required, in case of maintenance work (any levels) over an equipment or system which is holding flammable / toxic chemicals under pressure.

4.2.2.1.3.4. Additionally, Safe Work permit is also required for non-routine operation works that cover by a new specific procedure to perform the job which will be done by operations.

4.2.2.1.3.5. A Safe Work Permit is not required when the work to be done is covered by a Safe Operation Procedure “SOP”, a routine job in a non-classified area, visual inspections, or involves only “desk work”. But operations must take the precautions.

4.2.2.2. **Authority to Permit**

4.2.2.2.1. **General**

4.2.2.2.1.1. Authority to issue (approve) a safe work permit is Department Manager who responsible for the plants or area where the work is to be done.

4.2.2.2.1.2. That authority may be delegated to Section Manager who have appropriate level of experience (qualification).

4.2.2.2.1.3. Delegation of this authority shall be in accordance with specific types of work and the likely frequency of that work, as well as the experience of the delegates.

4.2.2.2.1.4. Individual names shall be on a current list of authorizer to approve permits and shall be posted in each plants or section. This list shall be kept active at all time.

4.2.2.2.1.5. There should be very limited number of delegation of authority to approve permits for hot work or vessel entry, which are potentially most hazardous and may occur infrequently.

4.2.2.2.2. **Authority on overlap area or responsibility**

Where work will overlap between separate areas of responsibility (e.g. outside plant battery limits), it may be necessary to have a permit counter-signed by two or more authorized persons. The following describe areas where Co-Signing is necessary;

4.2.2.2.2.1. **Work in more than one areas**

Work has to be done in more than one area it is allowed to issue only one permit if ;

4.2.2.2.2.1.1. The work is done by the same person(s). In such a case all areas involved need to co-sign on the Safe Work Permit.

4.2.2.2.2.1.2. The permit immediately becomes invalid in case in any of the areas the warning alarm is started. (The job supervisor will move with his people to the assembly point when the alarm cleared then returns

the permit to the operation department that sounds the warning signal).

4.2.2.2.2.1.3. Work can be resumed by re-new.

4.2.2.3. **General Rules & Practices in Safe Work Permit**

4.2.2.3.1. **General Rules**

4.2.2.3.1.1. No one shall be allowed to issue a Safe Work Permit to himself or herself

4.2.2.3.1.2. Safe Work Permit can be issued by qualified and authorized individuals in the specific facility where the work will occur.

4.2.2.3.1.3. Delegation to approve a Safe Work Permit can be done only to authorized CAP personnel who are in the area in which the work is being conducted.

4.2.2.3.1.4. AA manager who delegated his authority is fully responsible for all job safety and verify permit approver's qualification.

4.2.2.3.1.5. Delegated authority and responsibility is exclusive to individual. It can't be retransferred.

4.2.2.3.1.6. Permit Approver is accountable for safety of facilities where the work will occur while Permit Accepter is accountable for safety of the job/work to be done.

4.2.2.3.1.7. Isolation of all electrical and process equipment needs to make the job safe shall be carried out in accordance with "Logout – Tag out procedure".

4.2.2.3.1.8. The scope of the work shall not be extended beyond the work planned when the permit was issued.

4.2.2.3.1.9. All permits are cancelled in the event of a site emergency. The permit must be renewed prior the work/job to resume.

4.2.2.3.2. **General Practices**

4.2.2.3.2.1. **Work with Co-Signing**

If work is being done in or near an area owned by another work group such that the operations and/or hazards of the custodian's area may have an impact on the work, or such that the work being done may have an impact on the custodian's area, then:

4.2.2.3.2.1.1. AA shall have the responsibility for preparing and approving the Safe Work Permit.

4.2.2.3.2.1.2. AA communicate with the responsible person of the custodian's area(s) at the beginning and end of permitted work and proof that the communication occurred at the beginning of the permitting.

4.2.2.3.2.1.3. The responsible person of the custodian's area(s) shall co-sign the Safe Work Permit indicating that he/she (they) acknowledges the presence of the worker(s) and agrees with the safe conditions as described in the permit.

4.2.2.3.2.1.4. AA who approve the permit shall provide a photo copy of the Safe Work Permit to all adjacent area(s). The copy shall be kept in a designated centralized location for as long as the permit is active and work is being done.

4.2.2.3.2.1.5. AA shall notify all custodian's area(s) when the Work is completed or if it has been delayed.

4.2.2.3.2.2. **One Permit System**

In general, one permit shall be applied for only one Work. But in some Work's conditions, only one permit is simple and provided a better understanding and control. Then One Permit can be applied. Permit approver shall take precaution before issuing the permit.

4.2.2.3.2.2.1. **Multiple activities / disciplines on One Permit**

In case of several activities have to be done by several disciplines on one piece of equipment or in one limited area, then it is allowed to issue only one Safe Work Permit:

4.2.2.3.2.2.1.1. All the work is done on the same isolation scheme

4.2.2.3.2.2.1.2. All equipment is cleaned, safeguarded and safe to work on.

4.2.2.3.2.2.1.3. All workers report to the same work supervisor

4.2.2.3.2.2.2. **Work in more than one area on One Permit**

Work has to be done in more than one area if allowed to issue only one permit if;

4.2.2.3.2.2.2.1. Work is done by the same person(s). In such a case all areas involved need to co-sign on the Safe Work Permit.

4.2.2.3.2.2.2.2. The Safe Work Permit clearly defines all locations where work is being done

4.2.2.3.2.2.2.3. The sequence of the Works is defined and attached to the permit

4.2.2.3.2.2.2.4. All equipment is cleaned, safeguarded and safe to work on

4.2.2.3.2.2.2.5. No danger job is involved.

4.2.2.3.2.2.2.6. The permit immediately becomes invalid in case in any of the areas the warning alarm is started.

4.2.2.3.2.2.2.7. Work can be resumed by re-new.

4.2.2.3.2.3. **Placement of Safe Work Permit**

In general, there will be two (2) copies of a Safe Work Permit which shall be posted in visible at the following location;

Original (White) Original of Safe Work Permit	Must be posted on a clip board at the work site in a clearly visible position.
Copy No. 1 (Yellow) and copy safe work certificate	Must be posted on a clip board at Area Authority's Office in a clearly visible position for shift operators
Copy No 2. With name list of work crew	Must be posted at security gate where work crews access to the working area.
Caution: work may be stopped if workers or supervisor fail to show the work permit at job location or loss of the work permit.	

4.2.2.3.2.4. **Permit duration**

4.2.2.3.2.4.1. Workers able to work as long as they fit the amount of work to be done as follows below:

4.2.2.3.2.4.1.1. Work duration within 7:30 am – 6:00 pm

4.2.2.3.2.4.1.2. Work finish on 6 pm.

4.2.2.3.2.4.1.3. The requester can request work permit one day before working

4.2.2.3.2.5. **Long Period Safe Work Permit**

AA manager can allow written a safe work permit for long periods (i.e. greater than 06.00 pm) for case follows below :

4.2.2.3.2.5.1. Specific Works distant from the site i.e. pipeline right-of-way maintenance.

4.2.2.3.2.5.2. A work if discontinuity will affect to work i.e. Concrete work.

4.2.2.3.2.6. **Work permit after 6.00 pm.**

Conditions in the event to work after 6.00 pm :

4.2.2.3.2.6.1. Working after sunset (after 6.00 pm) needs a specific Safe Work Certificate in which considers of lighting and recuse assistance.

4.2.2.3.2.7. **Substantial work break**

A Safe Work Permit is valid for the full duration as filled in on the form. Where there is a substantial work break, such as a meal break i.e. lunch or dinner, a rest, start work late or any other activity that requires that they all leave the block-limits of the Permit issuing area more than 2 hours, as follows :

4.2.2.3.2.7.1. Suspension of Work Permit

4.2.2.3.2.7.2. If the worker want to continue his work shall contact Safe Work Certifier to verify work location.

4.2.2.3.2.7.3. Resume work

4.2.2.3.2.8. **Change of personnel in Safe Work Permit**

4.2.2.3.2.8.1. If changes in personnel occur while the permit is still current, the following action are required:

Tabel 1 Change of Personnel in Safe Work Permit

No.	Event of Personal change	Action Required
1)	WEA or significant change of work crew (> 50% crew)	Permit canceled and new permit requires.
2)	Small change of work crew (Some personnel are added to or changed to this Work.)	Permit is suspended until ensuring all new workers or responsibility changed workers are aware of the hazards of the Work and AA supervisor shall endorse the permit by initialing (sign) the form.
3)	Change due to Permit Approver or Work supervisor leaves the work site	The new Supervisor shall visit the work location, acquaint himself with the Work and endorse the permit by initialing (sign) the form.
4)	Change of plant operator at shift change	The new shift operator shall read and initial (sign) on the permit form

4.2.2.3.2.8.2. If Permit Approver or Work supervisor leaves the work site while the work is still being done and can no longer perform his/her responsibilities (for example emergency call or unplanned very importance meeting), then:

4.2.2.3.2.8.2.1. Safe Work Permit is required to be transferred to another person who has the same level of authorization.

4.2.2.3.2.8.2.2. The person to whom the safe work permit was transferred is required to assume the role and responsibilities and shall communicate this change to all people involved.

4.2.2.3.2.8.2.3. He/she requires reviewing the status of active Safe Work Permits and the status of affected equipment in their area of responsibility.

4.2.2.3.2.9. **Cancellation of Work Permit**

Any and all works with a Permit to Work shall be canceled if the following conditions occur :

4.2.2.3.2.9.1. All permits will be canceled at any time by plant personnel if this is warranted by change in plant conditions, WEA or significant change of work crew (> 50% crew)

4.2.2.3.2.9.2. There has been a change in work scope and this has resulted in more severe in hazards or less safeguards

4.2.2.3.2.9.3. A work stoppage in the event of an emergency or plant operating problem.

4.2.2.3.2.9.4. Permit was expired

4.2.2.3.2.9.5. If permit suspended more than 2 times.

4.2.2.3.2.10. **Suspension of Permit to Work**

Any and all works with a Permit to Work shall be suspended if the following conditions occur:

4.2.2.3.2.10.1. The permits will be suspended at any time by if this is warranted by change in plant conditions.

4.2.2.3.2.10.2. The work activity has taken longer than permitted by the Safe Work Permit.

4.2.2.3.2.10.3. Small change of work crew (All new workers shall obtain awareness of the hazards of the Work and the area.)

4.2.2.3.2.10.4. Additional requirements such as field testing (LEL) may be required before work can recommence if involves with special permits i.e. "Hot Work" or "Confined Space"

4.2.2.3.2.10.5. Where there is a substantial work break, such as a meal break

4.2.2.3.2.11. **Resume of Permit to Work**

4.2.2.3.2.11.1. Permit was canceled:

4.2.2.3.2.11.1.1. New permit must be issued before work is resumed

4.2.2.3.2.11.2. Permit was suspended:

4.2.2.3.2.11.2.1. AA shall confirm that it is safe by revisit the work site

4.2.2.3.2.11.2.2. Existing permits must be re-initialed (signed) before work is resumed

4.2.2.3.2.12. **Permit Extension**

Work can be extended by the following conditions;

4.2.2.3.2.12.1. Permit requester shall prepare sufficient lighting fixture and explain emergency practice during night time to all workers.

4.2.2.3.2.12.2. Permit extension can be done by Permit Approver shall revisit the work location, confirm with the Work conditions and endorse the permit by initiating the form.

4.2.2.3.2.12.3. Permit can be extended for maximum 4 hours.

4.2.2.3.2.12.4. Permit can be extended a further 4 hours if working conditions are the same as when the permit was issued.

4.2.2.3.2.13. **Work Completed Permit Closing**

When the work is completed:

4.2.2.3.2.13.1. When job finished, worker used the key to unlock their Lock and Tag hanging off the system before starting out with every point **(Release all personal Lock/Tag) and ordered the workers to stay away from the place execution.**

4.2.2.3.2.13.2. The WEA shall notify the plant supervisor or operator to perform Work acceptance test.

4.2.2.3.2.13.3. The plant supervisor or operator will inspect the Work in the presence of the work crew and perform Work acceptance test.

4.2.2.3.2.13.4. If satisfied, the original of the permit is signed up and handed over (return) then the permit is closed.

4.2.2.3.2.13.5. **Fulfill the area's housekeeping requirements.**

4.2.2.3.2.13.6. **Head counting to ensure no work crews left on the site.**

4.2.2.4. **Permit Work Process**

The following is standard work process in permitting a Safe Work Permit which shall be addressed in the Safe Work Permit procedure. If involves with special permits i.e. "Hot Work" or "Confined Space" additional steps or work process must be attached to the Safe Work Permit.

4.2.2.4.1. **Job planning**

4.2.2.4.1.1. In general, WEA is responsible for Job planning and communication. The way in which permit work shall depend on the type of work to be performed or the site procedure. Planning shall be in advance to notify the equipment owner on the timing and scope of work and workers in the area if the work could potentially impact them. Planning shall cover where potential hazards and methods of control or mitigation and rescue.

4.2.2.4.1.2. Planning can be done and verified during onsite inspection and meeting with all people involve with work. If necessary, consider the need for a

joint review and evaluation of the work site between all relevant parties. It helps assure that proper planning and attention has been given to the following areas:

4.2.2.4.1.2.1. The scope of work and the proper preparation of all equipment to be worked on.

4.2.2.4.1.2.2. Hazards present in the area, equipment and works are safeguarded or removed or minimize their impact (including using of Personal Protective Equipment requirements)

4.2.2.4.1.2.3. The potential environmental impacts and procedures included local regulation requirements.

4.2.2.4.1.2.4. The ergonomic concerns (position, force, duration and repetition) and
requirements.

4.2.2.4.1.2.5. Communication

4.2.2.4.1.2.5.1. Ensure reliable mean of communication between the issuer and executor of each job included support functions and rescue team.

4.2.2.4.1.2.5.2. The type or method of communication used between people involved the job shall be identified to cover normal and emergency situations.

4.2.2.4.1.2.6. Emergency procedures /operations and safe shutdown methods.

4.2.2.4.1.2.7. Rescue procedures

4.2.2.4.1.2.8. Safe use of Tools and equipment

4.2.2.4.1.2.9. Work planning and preparation

4.2.2.4.1.2.10. Safe work permit

4.2.2.4.1.2.11. Any needed field tests (oxygen, flammable gas, etc.).

4.2.2.4.1.2.12. Additional requirements but not limited to;

4.2.2.4.1.2.12.1. Line & Equipment Opening Standard.

4.2.2.4.1.2.12.2. Isolation of Energy Sources Standard.

4.2.2.4.1.2.12.3. Hot Work Standard.

4.2.2.4.1.2.12.4. Excavation and underground work standards/policies.

4.2.2.4.1.2.12.5. Hydro-blasting & Pressure Washing Standard.

4.2.2.4.2. **Work Preparation**

4.2.2.4.2.1. The WEA shall prepare work descriptions, and propose necessary operational and safety preparations for the work for which the permit is sought. The work preparation including:

4.2.2.4.2.1.1. Prepare equipment or tools.

4.2.2.4.2.1.2. Prepare the permits

4.2.2.4.2.1.3. Initially review work procedure with all workers/contractors and inform them of the location of working area.

4.2.2.4.2.1.4. Perform a joint job site visit as required in the permit preparation.

4.2.2.4.2.1.5. Ensure that work proceeds in accordance with the terms of the permit issued.

4.2.2.4.2.1.6. Ensure understanding of permit ' s terms and limitations.

4.2.2.4.2.1.7. Ensure that work will not cause any negative impacts to the environment.

4.2.2.4.2.1.8. Ensure that the working hazard is continuously monitored.

4.2.2.4.2.2. During the WEA is preparing work and all necessary operational and safety preparations for the work. Work supervisor shall verify that all crew members:

4.2.2.4.2.2.1. Have been through the Plant safety orientation,

4.2.2.4.2.2.2. Understand appropriate HAZCOM requirements,

4.2.2.4.2.2.3. Understand the job hazards and area hazards,

4.2.2.4.2.2.4. Know the location and use of safety showers and eyewash stations,

4.2.2.4.2.2.5. Know the location of the phone or intercom,

4.2.2.4.2.2.6. Know the emergency alarms, evacuation procedures and assembly points,

4.2.2.4.2.2.7. Know the procedures for completion of the job safely,

4.2.2.4.2.2.8. Have inspected all tools, equipment, scaffolding, etc.

4.2.2.4.2.2.9. Understand the housekeeping requirements.

4.2.2.4.3. **Job Safety Analysis**

Consider the need for using a JSA in the job/work preparation.

4.2.2.4.4. **Filling Safe Work Permit Form**

In general, WEA is responsible for filling Safe Work Permit Form. A Safe Work Permit Form shall be filled in for each activity/operation. If it includes more than one activity/ operation, precautions must be taken to avoid misunderstanding as to which parts have been cleared.

4.2.2.4.4.1. Work for which a Safe Work Permit is applied shall be described in an accurate and unambiguous manner, and the description shall be in accordance with the work to be performed

4.2.2.4.4.2. Safe Work Permit is invalid if incorrectly or insufficiently filled in or if it lacks the required approvals/authorizations

4.2.2.4.4.3. No changes must be made to a completed and approved Safe Work Permit. If changes are required, the permit must be re-processed.

4.2.2.4.5. **Preparation Safe Work Area**

The followingis preparation of safe work area shall be performed by Area Authrity but not limit to;

4.2.2.4.5.1. Viewed by area operators in relation to other ongoing activities in the area

4.2.2.4.5.2. Check the work site and confirm the work site has been cleared

4.2.2.4.5.3. Viewed by board-man at central control room (CCR) in relation to other ongoing activities.

4.2.2.4.5.4. Confirm that any piping or equipment to be worked on has been correctly identified.

4.2.2.4.5.5. For systems/equipment which have already been disconnected from the process and the work will involve opening the equipment, must physically

verify that the system/equipment is de-energized and positively identify the location of the break-in point.

4.2.2.4.5.6. Confirm that any required isolation has been properly carried out.

4.2.2.4.5.7. All electrical and process isolation needed to make the job safe shall be carried out in accordance with "Logout/Tag-out procedure"

4.2.2.4.6. **Approving Safe Work Permit**

4.2.2.4.6.1. AA manager shall consider the Safe Work Permit is approved to perform or not approved regarding plant condition.

4.2.2.4.6.2. AA manager can delegate his authority to approve Safe Work Permit to his/her authorized subordinate.

4.2.2.4.6.3. AA manager shall be responsible for any Safe Work Permit in his/her area.

4.2.2.4.7. **Safe Work Certification**

4.2.2.4.7.1. Safe Work Certifier accompany with WEA shall visit the work location to inspect the work place and make the relevant checks.

4.2.2.4.7.1.1. Check that the Work Permit form has been filled in correctly and bears the necessary approval signatures

4.2.2.4.7.1.2. Check and verify that necessary operations and safety preparations have been understood and have been/will be executed.

4.2.2.4.7.1.3. Confirm that any required isolation has been properly carried out.

4.2.2.4.7.1.4. Confirm that it is safe for work to proceed by signing the permit.

4.2.2.4.7.1.5. Safe Work Certifier shall read all key points in the permit to ensure the person who received the Safe Work Permit understands the requirements of the permit and its limitation.

4.2.2.4.7.1.6. The person who received the Safe Work Permit acknowledges and signed commitment to the conditions as described in the permit.

4.2.2.4.7.1.7. The area operators shall provide for necessary inspection during the work, in connection with stops or pauses in the work, and in connection with resuming the work.

4.2.2.4.7.1.8. Any specific chemical hazards and any special safety requirements noted on the permit shall be discussed and explained to the workmen.

4.2.2.4.8. **Work in progress**

While the work is in progress, the work crew shall have the original of the permit in his possession at the work location. Permit Approver shall:

4.2.2.4.8.1. Ensure that Work supervisor are notified of any changing conditions that could present a hazard to the workers.

4.2.2.4.8.2. Conduct additional on-site inspection(s) to ensure that the safe working conditions are maintained.

4.2.2.4.8.3. Suspend until re-authorized or cancel the Safe Work Permit if the safe working conditions are not maintained.

4.2.2.4.8.4. Complete any additional activities required by other standards (for example: atmospheric monitoring for Hot Work) while the work is being done.

4.2.2.4.9. **Work Completed / Permit Closure**

When the work crew has completed the permitted work that they were permitted to complete, permit has expired, or permit is cancelled, then Permit Approver and the WEA are required to:

4.2.2.4.9.1. **Review the status of the job and/or equipment.**

The safe work certifier must check;

4.2.2.4.9.1.1. That any isolations and disconnections have been restored, and documented/signed in the isolation confirmation certificate

4.2.2.4.9.1.2. That the work site has been tidied, cleaned and any labels and locks have been remove

4.2.2.4.9.1.3. That the affected personnel are informed that the work is complete

4.2.2.4.9.2. An on-site execution :

4.2.2.4.9.2.1. The scope of work included a line or equipment opening and the job is complete and the equipment is ready to be returned to service.

4.2.2.4.9.2.2. The job is not completed, but a review of the area to determine if the conditions are safe until the job is completed is needed (for example:
barricading in place for excavations, etc.)

4.2.2.4.9.2.3. The work performed removed or impaired a safeguard critical to life or created a hazard that required a safeguard critical to life (other than PPE)

4.2.2.4.9.2.4. The work did involve the erection, modification or removal of a life critical guard used for fall prevention.

4.2.2.4.9.3. A Central Control Room (CCR) execution ;

After the work is completed and confirmed, board-man in the CCR shall restore and disconnect safety functions which had done in CCR.

4.2.2.4.9.4. Document the signature of the WEA on the Safe Work Permit and any duplicates indicating that:

4.2.2.4.9.4.1. The Safe Work Permit is closed

4.2.2.4.9.4.2. All duplicates and additional checklists have been reconciled

4.2.2.4.9.4.3. Review of the status of the job and/or equipment has been completed

4.2.2.4.9.4.4. On-site inspection, when necessary, was completed.

4.2.2.4.9.4.5. Attach all additional checklists to the completed Safe Work Permit and any duplicates and then follow the records retention processes for Safe Work Permits in the facility.

4.2.2.4.10. **Permit Enforcement /Follow up**

4.2.2.4.10.1. When the permit must be updated during the shift while the permit is valid, enter the update time(s) in the Permit Timing box and initial by the updated items.

4.2.2.4.10.2. Cancel the permit if conditions of the permit are not being met or if the area or equipment conditions change requiring either the termination or re issuance of the permit.

4.2.2.4.10.3. Ensure that the permit issuance procedures are being followed.

4.2.2.4.10.4. Ensure that the terms of specific permits are being followed.

4.2.2.4.10.5. Ensure that completed entry and Safe Work permits are returned to the HSE Department.

4.2.2.4.10.6. Safe Work permit audit shall conduct by HSE audit twice a year.

4.2.2.4.11. **Permit System Monitoring**

The intent of such monitoring is to ensure that the conditions under which the permit was issued remain unaltered and that the precautions specified on the permit are being complied with. Normal extent and frequency for monitoring of the permitting system is by daily basis but can be determined by the facility.

Daily monitoring shall be responsible by representative of facilities / functional manager and/or by representative of HSE function. In general, the following key spot is suggested;

4.2.2.4.11.1. Is the permit properly displayed at the work site ?

4.2.2.4.11.2. Has it been properly completed ?

4.2.2.4.11.3. Is specified safety equipment in place ?

4.2.2.4.11.4. Are specified precautions adequate and being implemented ?

4.2.2.4.11.5. Has the work party been briefed and are the conditions of the permit and the full extent and nature of the work to be performed understood ?

4.2.2.4.11.6. More in depth checking should be carried out i.e. isolations, confined space, hot work, etc.

4.2.2.5. **Hazard Identification / Monitoring**

4.2.2.5.1. A critical element of issuing (approving) a work permit is an assessment of the hazards which may be associated with the work to be undertaken. Hazard monitoring shall ;

4.2.2.5.1.1. Be performed reflect the current conditions in the area. Clearance and guarding shall be done prior work can be started.

4.2.2.5.1.2. Be repeated during working at sufficient frequency to ensure that acceptable safe conditions are maintained, when not using continuous hazard monitoring.

4.2.2.5.2. **Hazard Monitoring Information**

4.2.2.5.2.1. The specific needs for all hazard monitoring shall be documented on the Safe Work Operating Procedure.

4.2.2.5.2.2. The date, time, name of the person performing the hazard monitoring, and detected level of hazards relative to their limits shall be documented on the Safe Work Permit.

4.2.2.5.3. **Hazard identification**

Such assessment should be carried out by the permit approver, in conjunction with the permit receiver and the work/job supervisor. They will know the hazards that could be encountered during the work including information on the mode of exposure (i.e., skin contact, inhalation, etc.), signs and symptoms of exposure, and consequences of exposure. The permit approver will survey the work area using the following observation techniques:

Observe	**For What .....**
LOOK For	Hazardous and other relevant conditions such as: • Flammable or combustible materials or liquids, • Corrosives or other hazardous chemicals,

	• Other hazards depending upon the job (i.e. pressure relief devices in the vicinity) • Weather conditions including wind direction and • Velocity, • Traffic patterns, • Access and escape routes, • General terrain around the work site, and/or • Physical hazards (sharp objects, trip hazards, etc.).
LISTEN For	Indications of hazardous conditions such as: • Leaks in piping, vessels, or other equipment, • High noise levels or unusual noise sources and/or • Vibrations, and /or other relevant sounds depending on the job location.
SMELL For	Unusual odors such as: • Hydrogen sulfide (H2S), sulfur dioxide, (SO2) Warning: High (H2S) can deaden the sense of smell, therefore, gas detection monitors must be used to determine levels of (H2S) • Petrochemicals, solvents, etc., and / or other odors relevant to the job.
FEEL For	Hazardous condition such as: • Sharp edges or pointed objects, • Temperature extremes, • Slick/slippery surfaces, and/or • unusual vibrations or movement in related equipment.
OBSERVE For	ABOVE, BELOW, BEHIND, AND INSIDE the work area for all possible hazards and pertinent conditions that will indicate a need for precautions and protective equipment and apparel.

4.2.2.6. **Personal Protective Equipment**

This section will describe standard requirements of Personal Protective Equipment (PPE) for a work/job that requires permit to work. Scope of PPE for a permit is beyond general PPE like wearing hard hat, safety shoe, safety glasses and long sleeve shirt.

4.2.2.6.1. **Basic PPE**

4.2.2.6.1.1. The required PPE shall be determined based upon the hazards identified (for example: physical, chemical and biological agents, noise, radiation, etc.) for each Safe Work, including the hazards of any agents introduced into the confined space from the work being done (for example: curing agents, paints, purge gases, welding, etc.).

4.2.2.6.1.2. These PPE requirements shall be documented and communicated.

4.2.2.6.1.3. All PPE shall be used in accordance with the CAP Personal Protective Equipment Standard, the CAP Hearing Conservation Standard and Respiratory Protective Equipment Standard as well as Indonesia regulations.

4.2.2.6.2. **Additional**

Breathing protection must meet the following requirements:

4.2.2.6.2.1. SCBA equipment, if used, is properly tested and air bottles are completely filled with air which is not older than 6 months.

4.2.2.6.2.2. If air supply hoses are applied then they need to be of sufficient length to get through the complete space. Bottled air must be of medical quality and not older than 6 months.

4.2.2.6.2.3. Usage of plant air is not allowed under any condition for breathing protection.

4.2.2.6.2.4. For rescue purposes always one set of SCBA is stationed at the point of entry. This set can only be used for Safe Work in case of an incident.

4.2.2.7. **Emergency / Rescue**

4.2.2.7.1. **General**

4.2.2.7.1.1. Establish written emergency response procedures including communication methods appropriate for all kind of work permits and review with people involve included work crew.

4.2.2.7.1.2. Establish written rescue plan for all potential rescue situations and review with the rescue team if work comply to this matrix

Category	ERP & Rescue Team Standby on Manway/Ground	Prepare Rescue Plan	
Confined Space Entry	✓	✓	✓
Hot Work Class I	✓	✓	
Condition over threshold value	✓		

4.2.2.7.1.3. Establish written Pre Fire Plan for all potential situations and review with the Fire Section if work comply to this matrix

Category		Pre Fire Plan Exist
Pyrophoric	Accident Risk	
✓	✓	✓
✓	✗	✓
✗	✓	✗
✗	✗	✗

4.2.2.7.1.4. Emergency equipment shall be standby on the work scene during work.

4.2.2.7.1.5. All emergency equipment shall be inspected for condition and proper operation regularly.

4.2.2.7.1.6. Where rescue by entry is not possible, a mechanical retrieval device will be required to allow non-entry rescue.

4.2.2.7.1.7. Harness and rescue lines are required to help facilitate rescue.

4.2.2.7.1.8. The end of the lifeline must be attached to a fix point outside the permitted space or to the mechanical retrieval device.

4.2.2.7.2. **Rescue Operations**

Rescue operations shall only be conducted when the proper protective equipment is used.

4.2.2.7.2.1. Functional leader (Manager & Supervisor) shall document those specific individuals by names who are authorized to be a Rescue Team Member.

4.2.2.7.2.2. AA & Fire managers shall review and update, as necessary, this list annually.

4.2.2.8. **Specific requirement for a permit**

This section will describe special precautions required for the type of work is different from the standard work permit which there is safety risk involved, the detail of work requested must be reviewed with the next level of supervision.

4.2.2.8.1. **Cold Work Permit**

4.2.2.8.1.1. **Specific Rules**

Same as Standard Safe Work Permit

4.2.2.8.1.2. **Preparation**

Same as Standard Safe Work Permit

4.2.2.8.1.3. **Permit Approval**

Same as Standard Safe Work Permit

4.2.2.8.1.4. **Expiration /Renewal**

Same as Standard Safe Work Permit

4.2.2.8.1.5. **Special Precautions**

Same as Standard Safe Work Permit

4.2.2.8.2. **Hot Work Permit**

Hot work is a work contain ignition source or another spark production work in the process area and in general standard areas if exception is not specified in writing by the manager of the plant/site.

Hot Work has the potential to bring ignition sources in areas where flammables might be present. To ensure the precautions to be taken for Hot Work are in line with the potential of the hazards it introduces Hot Work is categorized into two categories dependent on their potential to ignite vapor clouds. Special requirements for Hot Work are dependent on the classification of the area where the Work is to be done and the type of Hot Work.

4.2.2.8.2.1. **Hot Work : High Energy (Class I)**

Work that produces high energy that a potentially present mixture of flammable gas can be ignited. Examples are welding (electrical, gas), grinding, torch cutting, heat treatment of lines with electrical pads above 350 ° C.

4.2.2.8.2.2. **Hot Work : Low Energy (Class II)**

Work that in principle generates sufficient energy to ignite a mixture of flammable gas. Examples are electrical rotating equipment (drills), pneumatic driven drills and saws, non-explosion motors, non-ex-proof distribution panels, non- ex-proof lighting, laser equipment, non-intrinsically safe communication equipment (mobile phones, Walkie-Talkies), cameras and camcorders, non-ex-proof instrumentation or measuring devices.

4.2.2.8.2.3. **Specific Rules**

4.2.2.8.2.3.1. Before issuing (approve) high spark producing permit consider alternative whether drilling can be used

4.2.2.8.2.3.2. The one who actually is doing cutting, welding, etc shall accompany the permit approver during the on-site inspection to review hazards

of the job and the area to confirm that all precautions or protective equipment has been properly carried out and maintained.

4.2.2.8.2.3.3. Periodic (every 2 hours) gas tester reading shall be recorded on the permit. Instrument shall be calibrated accordingly and test reading shall be documented.

4.2.2.8.2.3.4. Hot work Class I (contain high spark producing i.e. cutting or welding) in Red A areas must have Fire Watch or process technicians present as fire fighter and monitor gun must be aimed at job location.

4.2.2.8.2.3.5. Where hot work is carried out at an elevated level and there is potential for sparks to fall to ground level, a normal precaution will be to station an assistant at ground level with a running water hose to extinguish sparks or using Fire retarded blanketing.

4.2.2.8.2.3.6. If the atmosphere quality could change over time, then the atmosphere within the work area will either be periodically or continuously monitored to assure that personnel in the area are not endangered.

4.2.2.8.2.3.7. When testing for atmospheric hazards, oxygen will be tested first, then combustible gases and vapors, and then toxic gases and vapors.

4.2.2.8.2.3.8. Activity allowable when flammable containment limit (LEL) 0% reading on gas detector or below 5 % under N_2 blanketing (Oxygen shall be below 3%).

4.2.2.8.2.4. **Preparation**

4.2.2.8.2.4.1. Review the extent of the work to be done and the nature of working area by Hazardous area classification.

4.2.2.8.2.4.2. Only one permit is for one hot work

4.2.2.8.2.4.3. Performing gas testing of the area as appropriate where the work will be performed and test result shall include in the permit.

4.2.2.8.2.4.4. Ensure that the equipment or area is appropriately prepared; follow equipment isolation, lockout / tag-out procedures.

4.2.2.8.2.4.5. Extreme care must be taken for any hot work near flammable storage tank pressure release valve (PSV).

4.2.2.8.2.4.6. Hot work in the vessel should be given particular consideration, because of the potential that has to vaporize residual liquids or to cause reactions which can generate explosive gases such as hydrogen.

4.2.2.8.2.4.7. A suitable fire extinguisher min. 2 ea (@6kg/4A40BC) must always present in the immediate job area. Only spare potable fire extinguishers shall be used.

4.2.2.8.2.4.8. All activity shall be covered with blanket min. melting point above 550°C,non-asbestos material and had max.3 holes with diameter 0,2 cm per $1m^2$.

4.2.2.8.2.4.9. Fire blanket shelter shall be provided to protect fire spark.

4.2.2.8.2.4.10. Placement of welding machine, genset, compressor, pressurized tube shall not block emergency facility access.

4.2.2.8.2.4.11. Welding cable in poor condition shall not use, no spliced within 3 meters of the electrode holder. Placement of welding cable shall not be rolled.
4.2.2.8.2.4.12. The frame of arc welding and cutting machine shall be grounded.
4.2.2.8.2.4.13. Welding torch shall using double flash back arrester (output cylinder and input of gun).
4.2.2.8.2.4.14. Ignition of welding torch shall using electrical lighter.
4.2.2.8.2.4.15. Electrodes and holder when not in use shall be protected.
4.2.2.8.2.4.16. Cylinder shall be protected from all hot surface.
4.2.2.8.2.4.17. Cylinder gas in service or standby shall be securely placed on fixed or portable rack.
4.2.2.8.2.4.18. Work area shall free from combustible / flammable containment min. 15 meters
4.2.2.8.2.4.19. Oil or grease shall never present on oxygen cylinder.
4.2.2.8.2.4.20. Valve stem wrenches shall be left in place while cylinder in use/on service.
4.2.2.8.2.4.21. Cylinder contain oxygen,fuel gas shall not be taken into confined space.
4.2.2.8.2.4.22. Cylinder shall be placed away from electrical panel/ apparatus.
4.2.2.8.2.4.23. Before starting work, worker shall make sure cylinder not leakage with leakage test on regulator valve with soap solution.
4.2.2.8.2.4.24. Standby cylinder shall install with valve cap.
4.2.2.8.2.4.25. Cylinder regulator shall industrial standard and work properly.
4.2.2.8.2.4.26. All hot work tools and equipment shall passed inspection from owner and CAP's ACI (*Reference 1. Tools and equipment inspection procedure*).
4.2.2.8.2.4.27. If a Fire Watchman is required, ensure he is on fulltime duty; focus on fire watching, no other jobs to do.
4.2.2.8.2.4.28. During the preparation of the hot work permit, it should be determined whether periodic follow up or continuous testing will be required due to the nature of the work. This decision is based on whether the work activities themselves or conditions within the work area may change the atmospheric quality during the work.

4.2.2.8.2.5. **Permit Approval**

4.2.2.8.2.5.1. Work described in the permit must commence within 2 hours of gas testing; if it does not, a new gas test will be required prior to beginning work.
4.2.2.8.2.5.2. Permit to remain at the job site until completion of the work (including extended Fire Watch) or the permit expires, whichever occurs first.

4.2.2.8.2.6. **Expiration /Renewal**

Same as standard safe work permit.

4.2.2.8.2.7. **Special Precautions**

4.2.2.8.2.7.1. **Fire watchman**

By under the following conditions, the fire watchman, or a relief attendant, is required to remain at the work site for a minimum of thirty (30) minutes after completion of permit-related hot-work activities before turning in the work permit:

4.2.2.8.2.7.1.1. In work areas where exposed flammable or combustible materials (wood, paper, rags, dry grass, etc.) is present in the general area closer than 10 meter to the location of the cutting/burning;

4.2.2.8.2.7.1.2. Wall or floor openings are present within a 10 meter radius that do or may expose flammable or combustible materials; or

4.2.2.8.2.7.1.3. Combustible/flammable materials are adjacent to the opposite side of metal partitions, walls, piping, ceilings, or roofs and are likely to be ignited by conduction or radiation.

4.2.2.8.2.7.2. **Gas Testing**

Gas tests must be taken as part of a hot work permit issuance where the work will be done in an area that is electrically classified as a Red area, which includes the following types of areas:

4.2.2.8.2.7.2.1. ISBL (Inside Battery Limits) within any process operating unit;

4.2.2.8.2.7.2.2. Within the confines of any tank farm dike or retaining wall;

4.2.2.8.2.7.2.3. Within active hydrocarbon tank truck, rail car, or barge/ship loading/unloading areas;

4.2.2.8.2.7.2.4. In the area of gaseous hydrogen storage;

4.2.2.8.2.7.2.5. Within 10 meter of active open process sewers and/or separators;

4.2.2.8.2.7.2.6. Within 10 meter of active hydrocarbon conveying pipelines; or

4.2.2.8.2.7.2.7. Within any excavation.

4.2.2.8.3. **Confined Space Entry Permit**

There have been many fatal accidents caused by confined space entry. The maximum safety precautions must be taken in preparation for such work. The following rules shall be applied in addition to the general safe work permit procedures.

4.2.2.8.3.1. **Scope :**

Fore entry into any space not designated for continuous occupancy with limited to openings for entry and exit that also could contain, hold or produce dangerous contaminants i.e. tank, or pressure vessel, or pit of more than one (1) meter deep, tank truck, duct and container of hazard or inflammable materials or suspected inadequate ventilation container.

4.2.2.8.3.2. **Specific Rules**

4.2.2.8.3.2.1. Atmospheric in the vessel must be measured prior to EVERY entry (maximum 20 minutes before worker enter confined space).

4.2.2.8.3.2.2. The oxygen contents in the vessel must be not less than 19,5% v/v and the reading must be recorded on the permit.

4.2.2.8.3.2.3. The vessel must be tested by a suitable gas tester to ensure that there will be no harm to people who will entry.

4.2.2.8.3.2.4. Requirement for Confined Space

Table 12. 1 Confined Space Requirement

Product	Gas test reading	Condition for entry and work
Hydrocarbon (HC)	Less than 1 % LEL	Hot and cold work allowed without BA provided oxygen is not less than 19.5%

	Less than 4% LEL More than 1% LEL	Cold work allowed without BA provided oxygen is not less than 19.5%
	Less than 25% LEL More than 4% LEL	Cold work allowed with BA
	More than 25% LEL	No entry allowed
Hydrogen Sulphide (H2S	Between 0 to 10 ppm	Up to 8 hours without BA, but using special PPE (gas mask)
	More than 10 ppm less than 25% LEL	BA required.
Oxygen	Between 19.5-23%	Fit for entry without BA
	Less than 19.5%	Entry with BA and provided effective ventilation
	More than 23%	Not entry allowed
	Very low oxygen eg; N2 purged	Inert entry by professionally trained workers only
Benzene	More than 1 ppm Less than 4% LEL	Organic vapor cartridge respirator need.

4.2.2.8.3.2.5. Activity allowable when :

4.2.2.8.3.2.5.1. Maximum temperatur in confined space is 38°C without protection.

4.2.2.8.3.2.5.2. Toxic gas content shall not exceed maximum for each content without protection:

4.2.2.8.3.2.5.2.1. H_2S : 10 ppm

4.2.2.8.3.2.5.2.2. Butadiene : 1 ppm

4.2.2.8.3.2.5.2.3. Benzene : 1 ppm

4.2.2.8.3.2.5.2.4. CO : 35 ppm

4.2.2.8.3.2.6. Owner department will assure the following actions are taken to make a space "safe":

4.2.2.8.3.2.6.1. Blinding and/or disconnecting all lines entering the space.

4.2.2.8.3.2.6.2. Cleaning the space thoroughly by draining, water washing, steaming, or other suitable means.

4.2.2.8.3.2.6.3. Locking out/tagging out/disconnecting devices such as mixers, radiation sources, etc.

4.2.2.8.3.2.7. It is not acceptable to rely on a closed valve for isolation.

4.2.2.8.3.2.8. A life line must be worn at all times when being inside a vessel and must be handed by Hole Watchman who is standing at outside of vessel.

4.2.2.8.3.2.9. A Hole Watchman must standby outside whilst the man is inside the vessel. He must not be assigned to other jobs while is on buddy duty.

4.2.2.8.3.2.10. Only air tools are to be used for cleaning inside the vessel.

4.2.2.8.3.2.11. Instrument air MUST not be used on any breathing equipment.

4.2.2.8.3.2.12. Pressured cylinders e.g. oxygen or acetylene are not permitted to be taken into a confined space.

4.2.2.8.3.2.13. In the event when the need to evacuate from the confined space, an air horn (or any agreed to signal) will be sounded to notify all people.

4.2.2.8.3.3. **Preparation**

4.2.2.8.3.3.1. **Isolation of the vessel** shall include ;

4.2.2.8.3.3.1.1. Disconnection of all lines connected to the vessel and at the point closest to the vessel. All pipe must be physically disconnected or blocked off.

4.2.2.8.3.3.1.2. All moving parts inside a vessel must be mechanically disconnected from any driving mechanism. Immobilization of all moving parts, such as agitators, in the vessel. Physically disconnect cables to the electric motor drives or disconnect shaft couplings. Restrain any parts which could be manually moved.

4.2.2.8.3.3.1.3. Connections to auxiliary devices, e.g. pressure gauge, sample points, etc, must be opened during vessel cleaning, so that any material in these parts is cleared out.

4.2.2.8.3.3.2. **Removal of Entrance Covers (Man way)**

4.2.2.8.3.3.2.1. When entrance covers are removed, the opening shall be promptly guarded by a railing or barrier to prevent accidental entry or falls, etc., until the space is permitted and made ready for entry.

4.2.2.8.3.3.2.2. A sign stating "DANGER – CONFINED SPACE - Enter By Permit Only" will be immediately placed at the entry portal by whoever removes the entrance cover. Owner department is responsible for making the sign available.

4.2.2.8.3.3.3. **Remove hazardous materials**

4.2.2.8.3.3.3.1. The vessel shall be drained and then cleaned with steam, water, air or nitrogen or combinations of those as appropriate.

4.2.2.8.3.3.3.2. An air purge shall always follow when the vessel has been cleaned by other means.

4.2.2.8.3.3.3.3. Hoses for steam or air purge shall be earthed and also electrically bonded to the vessel to avoid static discharge which could be a source of ignition of flammable vapor.

4.2.2.8.3.3.3.4. Give consideration to clearing pockets of hazardous material which might be trapped in drain nozzles, instrument or sample point connections, behind baffles or under scale.

4.2.2.8.3.3.4. **Ventilation**

4.2.2.8.3.3.4.1. Adequate ventilation means an air remover attached to the vessel as independence as possible from the manhole or opening through which access is made and has total capacity 4 times of vessel volume/hours. Air remover must be earthed. "Do not Operate" tags must be attached to the hose and valve or switch connected to the air mover.

4.2.2.8.3.3.4.2. Avoid ventilation patterns which can leave stagnant zones. The optimum pattern is to withdraw air from an opening at the top of the vessel and allow air to enter through an opening at the bottom and on the opposite side.

4.2.2.8.3.3.4.3. Any valve or switch essential to the motive force for ventilating air shall be red tagged.

4.2.2.8.3.3.5. **Atmospheric Testing**

4.2.2.8.3.3.5.1. Testing will be performed by a well-trained person with an instrument that has been calibrated. Owner department is responsible for making right.

4.2.2.8.3.3.5.2. Will be done initially with air removers off; subsequent retesting can be done with the air removers remaining on.

4.2.2.8.3.3.5.3. Confined Space work described in the permit must begin within 20 minutes of gas testing; if it does not, a new gas test will be required prior to beginning work.

4.2.2.8.3.3.5.4. The vessel atmosphere shall be tested for ;

4.2.2.8.3.3.5.4.1. Flammable vapor, using a combustible gas tester which has been bump test, calibrated and checked in accordance with CAP Standard. Testing shall be carried out near the top and bottom of the vessel and at any other appropriate points, depending on partitions or baffles installed.

4.2.2.8.3.3.5.4.2. Oxygen content. The test meter shall be calibrated in fresh air before use and the oxygen content in the vessel shall not be less than 19,5% not more then 23% , within the meter accuracy.

4.2.2.8.3.3.5.4.3. Toxic substance, when the nature of material contained in the vessel previously is such that a hazardous residual concentration could still be present.

4.2.2.8.3.3.5.4.4. It may be necessary to retest the atmosphere at intervals during the work, depending on the nature of the work and the potential for any charge in conditions.

4.2.2.8.3.3.6. **Life Saving**

4.2.2.8.3.3.6.1. The person entering the vessel shall wear a life line at all times. Where this is impractical, exemption can be obtained in by approving from function manager / supervisor

4.2.2.8.3.3.6.2. WEA shall be in attendance when the vessel is first entered and when there is any resumption of work.

4.2.2.8.3.3.6.3. A Hole Watchman shall be on standby outside while any person is inside the vessel. The Hole Watchman shall perform as their role and responsibility.

4.2.2.8.3.3.6.4. Must describe the method of communication between the attendant and personnel inside the space i.e. by hail if they are within hailing distance and by use of two way radio if any.

4.2.2.8.3.3.6.5. The Hole Watchman shall instruct the workman to leave the vessel if he suspects that there has been a charge in conditions

4.2.2.8.3.3.6.6. One set of SCBA equiped with Y piece for 2 full face mask shall be available at the vessel in case rescue is required. The equipment shall be checked for operation and personnel shall be trained in its use. A person knowledgeable in artificial respiration should be in attendance or readily available.

4.2.2.8.3.4. **Permit Approval**

4.2.2.8.3.4.1. Is approved to the space, not to any specific crew or contractor.

4.2.2.8.3.4.2. Can be issued for the job duration but will not exceed 24 hours.

4.2.2.8.3.4.3. If the temperature within the space is in excess of 38 ^{o}C, it will not be permitted for entry without special provisions determined by discussion between the Operations, Maintenance or Contractor Supervisor and HSE.

4.2.2.8.3.5. **Renewal /Expiration**

4.2.2.8.3.5.1. Must be canceled and reissued if the configuration or use of the space changes in such a way that hazards are increased.

4.2.2.8.3.5.2. If any ones detect a potentially hazardous atmospheric condition, the permit must be suspended until an investigation is made by the WEA. This action would be noted on the permit form. Work can be resumed if nothing is found.

4.2.2.8.3.6. **Special Precautions**

4.2.2.8.3.6.1. **Routine, Repetitive Work in a Confine Space**

4.2.2.8.3.6.1.1. AA manager shall review and approve the list of routine, repetitive confined space entries job existing in their facilities included list of specific individuals by name who are authorized to work on routine, repetitive confined space job.

4.2.2.8.3.6.1.2. Operation procedure for each routine, repetitive Safe Work in Confine Space shall be established and enforce.

4.2.2.8.3.6.1.3. The document shall be reviewed and updated annually as well as when new or modified procedures, methods, equipment, hazards or safeguards are introduced.

4.2.2.8.3.6.1.4. New worker is not allowed to perform a routine, repetitive confined space entries job without closely supervision from a qualified trainer.

4.2.2.8.3.6.2. **Monitoring**

During the work is in progress, the Owner department is responsible to ensure that;

4.2.2.8.3.6.2.1. All personnel who may be impacted by the work are aware that the work is commencing.

4.2.2.8.3.6.2.2. The atmosphere is continuously monitored during a confined space entry such as but not limited to the following:

4.2.2.8.3.6.2.2.1. Use of inert gases

4.2.2.8.3.6.2.2.2. Possibility of restricted ventilation

4.2.2.8.3.6.2.2.3. Possibility of introduced toxic gases

4.2.2.8.3.6.3. **Lighting/Electrical Power**

The hazard of electric shock will be greater inside a grounded metal vessel than it would be in other normal work situations. Lighting or power used within a confined space will meet the following requirements:

4.2.2.8.3.6.3.1. Use a DC less than 24 Volt or a 120-Volt system with ELCB.

4.2.2.8.3.6.3.2. Any transformers shall be located outside the vessel.

4.2.2.8.3.6.3.3. Lights which operate from low voltage supply but incorporate a voltage step-up mechanism shall not be used.

4.2.2.8.3.6.3.4. Meet the requirements for Class I, Division 2, Groups C & D rating where possible explosive or flammable atmospheres cannot be eliminated.

4.2.2.8.3.6.4. **Welding**

4.2.2.8.3.6.4.1. Ventilation systems must be implemented when welding in a confined spaces area where there are partitions, structural barriers, or other barriers that significantly obstruct airflow (such as baffles, trays, or limited access openings). One of the following ventilation options must be implemented:

4.2.2.8.3.6.4.1.1. Provide at least 50 m3 / min of airflow for each active welders; or

4.2.2.8.3.6.4.1.2. Provide each welder with a local exhaust device capable of maintaining a velocity of 30 mpm toward the air intake.

4.2.2.8.3.6.4.2. Arc welding inside of a confined space

If work/job is suspended for lunch, breaks or shift change, the electrodes shall be removed from the holders and the holders located so that accidental contact cannot occur. Also, the welding machine must be disconnected from the power source or turned off in the case of a diesel-powered machine.

4.2.2.8.3.6.4.3. Gas welding or cutting inside of a confined space

If work/job is suspended for lunch, breaks or shift change, the torch valves must be closed and the fuel-gas and oxygen supply to the torch must be positively shut off at a point outside the confined space. Where practicable, the torch and hose must also be removed from confined space.

4.2.2.8.3.6.5. **Respiratory Protection**

Respiratory protection will be used in case of cleaning and/or forced air ventilation do not adequately remove air contaminants from the confined space or the work is such that it will introduce additional contaminants into the atmosphere within the space. Required respiratory protection will be specified by the Owner department supervisor with advice as needed from HSE.

4.2.2.8.4. **Non-Hazardous Confine Space Entry Permit**

4.2.2.8.4.1. **Scope**

Certain spaces meeting the OSHA definition of "Confined Space" as they are confined spaces either due to their ″ limited access or egress ″ and are ″ not designed for continuous occupancy. ″ These spaces are identified as Non-Hazardous confined spaces are:

4.2.2.8.4.1.1. External Floating Roof Tank Tops,

4.2.2.8.4.1.2. Tower Skirts,

4.2.2.8.4.1.3. Work area more than 1 meter below grade

4.2.2.8.4.1.4. Within concrete containment basins i.e. tank dike

4.2.2.8.4.1.5. Cooling Tower Cells

4.2.2.8.4.2. **Specific Rules**

Warning sign to identify as " Non-Hazardous confined space "

4.2.2.8.4.3. **Preparation**

Same as Confine space entry Permit

4.2.2.8.4.4. **Permit Approval**

Same as Confine space entry Permit

4.2.2.8.4.5. **Expiration /Renewal**

Same as Confine space entry Permit

4.2.2.8.4.6. **Special Precautions**

Same as Confine space entry Permit

4.2.2.8.5. **Excavation Permit**

4.2.2.8.5.1. There have been many incidents where excavation operations have contacted live electric cables or pipes containing hazardous material. The excavation permit is not itself a "safe work permit", but is a prerequisite to issuing a safe work permit for such work. The actual work might also involve hot work, in the operation of mechanical equipment, or it may require a permit for confined space entry if the excavation is to sufficient depth and any person will enter the excavation.

4.2.2.8.5.2. **Scope** :

For any penetration of the ground by any means to a depth greater than 15 cm.

4.2.2.8.5.3. **Specific Rules**

Where the location of an underground installation is not accurately know, it may be necessary to specify excavation with hand tools to locate the installation.

4.2.2.8.5.4. **Preparation**

4.2.2.8.5.4.1. Drawings of underground tanks, lines and utilities will be reviewed as needed by CAP EGD.

4.2.2.8.5.4.2. Attached to the permit a detailed sketch showing the location of the excavation as accurately as possible (including depth) and of any know underground installation in or close to the area of intended excavation.

4.2.2.8.5.4.3. If applicable, barricades and warming lights must be provided around the excavation

4.2.2.8.5.4.4. Gas Testing shall be used to monitor the possibility that the excavation area might contain pockets of flammable vapors or breathing deficiency.

4.2.2.8.5.5. **Permit Approval**

4.2.2.8.5.5.1. The excavation permit shall be Co-approved by person(s) knowledgeable in underground installations.

4.2.2.8.5.5.2. Where appropriate the permit might be in two sections, covering separate approval for piping and electrical clearance

4.2.2.8.5.6. **Expiration /Renewal**

The excavation permit duration;

4.2.2.8.5.6.1. Permit in standard area may be valid for a period up to one month.

4.2.2.8.5.6.2. Permit in process area may be valid up to one week.

4.2.2.8.5.7. **Special Precautions**

4.2.2.8.5.7.1. Special precaution depends on the depth as below

4.2.2.8.5.7.1.1. Deeper than 15 cm : Barricade area

4.2.2.8.5.7.1.2. Deeper than 1 meter : Provide adequate acces and egress

4.2.2.8.5.7.1.3. Deeper than 1,2 meter : Follow Confined Space Entry

4.2.2.8.5.7.1.4. Deeper than 1,5 meter : Properly shored or sloped based on actual calculation by competent person

4.2.2.8.5.7.2. Excavation activity within radius 2 meters from process area shall be perform with manual digging.

4.2.2.8.5.7.3. Excavation using mechanical equipment shall perform test pit using manual until desired depth to ensure there is no unknown pipe or cable beneath excavation activity.

4.2.2.8.5.7.4. All adjacent structures, buildings, walls, etc. must be braced or underpinned to prevent collapse into the excavation.

4.2.2.8.5.7.5. Barriers will be set back far enough to prevent vehicle.

4.2.2.8.5.7.6. Measures have been taken to remove materials such as rocks or soil at least 1 meter from the edges of the excavation that could pose a falling hazard.

4.2.2.8.5.7.7. Re-inspect the excavation prior to entry after a rainstorm

4.2.2.8.6. **Work on High Voltage (>380 Volts) System Permit**

4.2.2.8.6.1. **Scope :**

Checking operating and repairing on >380 voltage switch gear, high voltage transformer, Ring Main Unit, high voltage equipment or any parts of equipment which voltages supply are over 380 Volts, entering HV switch gear room, Ring Main Unit room and HV transformer area

4.2.2.8.6.2. **Specific Rules**

4.2.2.8.6.2.1. All personal protection equipment and tools to be used for >380V operation must be approved according to the American Society for Testing and Materials (ASTM) standard, American National Standards (ANSI) or International Electro Technical Commission (IEC) standard or CAP ' s standard whatever more strengthen.

4.2.2.8.6.2.2. All >380 voltage activities (operating or repairing) shall be carried out by a nominated team consisting of at least two persons, one of whom must be a qualified >380 voltage technician or Electrical engineer or a special team with prior approval from Maintenance manager.

4.2.2.8.6.2.3. Number of personnel to perform the work should be minimum as necessary.

4.2.2.8.6.2.4. Minimum safety clothing shall be Nomex coveralls, safety glasses with side shields, full face visor and substantial footwear.

4.2.2.8.6.2.5. Minimum safety equipment/tools shall be : Pure rubber floor mats in the Substation room, manufacturer supplied handles and/or levers

for high voltage operation, voltage indicators, and high voltage gloves (having mark of voltages)

4.2.2.8.6.3. **Preparation**

4.2.2.8.6.3.1. HV one line diagrams and 2 way radio for remote communication should be available on hand before starting the work.

4.2.2.8.6.3.2. The existing and final status of switchgear on safety one line diagram must be reviewed with qualified electrical engineer.

4.2.2.8.6.3.3. Written job/operation procedure (SOP) to perform the work must be prepared and approved by qualified electrical engineer. The procedures must be rehearsed with the people involved before starting the work. Reconfirm that all status of the system are in the position as required in the SOP.

4.2.2.8.6.3.4. Follow Lockout / Tag-out procedure

4.2.2.8.6.4. **Permit Approval**

Same as Standard Safe Work Permit.

4.2.2.8.6.5. **Expiration /Renewal**

Same as Standard Safe Work Permit.

4.2.2.8.6.6. **Special Precautions**

4.2.2.8.6.6.1. Before work start ensure that all status of the system are in the position as required for the initial conditions, to the SOP.

4.2.2.8.6.6.2. Before closing main circuit breaker in high voltage switch gear room for receiving incoming voltage which supplied from PLN, we must ensure that no fault in our power system. And PLN power supply will have voltage in 3 phase, no voltage loss in any phase.

4.2.2.8.6.6.3. After finishing each step of operation, reconfirm the status of switch or last action prior to do the next step.

4.2.2.8.6.6.4. Before overhaul or maintenance service for high voltage equipment such as high voltage transformer overhaul, high voltage power cable connecting, etc., a switch or switchgear which supplied power to the equipment must be opened and earth switch must be closed. Procedure for earthing must be followed.

4.2.2.8.6.6.5. LOTO procedure must be followed. AA first followed by the worker.

4.2.2.8.6.6.6. Confirm voltage is zero by measuring with high voltage indicator after switch is opened before starting overhaul or maintenance service job for high voltage equipment.

4.2.2.8.6.6.7. After high voltage equipment overhaul or maintenance service job is finish, ensure that no tools or conductor metals inside the high voltage equipment left.

4.2.2.8.6.6.8. When work is finished remove LOTO, first by worker followed by AA.

4.2.2.8.7. **Work on Electrically Drive Equipment Permit**

4.2.2.8.7.1. **Scope :**

This covers the electrical isolation procedures that must be used for work on electrically driven equipment. It also applies to work on electric motors.

4.2.2.8.7.2. **Exception :**

Maintenance of Laboratory items or office machines may be isolated by disconnection plugs or local disconnect such as a switch. This only applies of Routine adjustments when the equipment is under the control of the equipment operator

4.2.2.8.7.3. **Specific Rules**

4.2.2.8.7.3.1. Follow Lockout / Tag-out by try to restart with switch at the motor.

4.2.2.8.7.3.2. Switch at motor shall be left in the " OFF " / " Manual " positions (insert pin lock at switch) to prevent automatic restarting of the motor.

4.2.2.8.7.4. **Preparation**

4.2.2.8.7.4.1. Check electrical one line diagram to ensure other motors or circuits that could adversely affect the plant operation do not share the same M.C.C. (Motor Control Centre) switch.

4.2.2.8.7.4.2. Field Operator " Stop " the motor using the switch located at the motor and insert pin lock to the switch.

4.2.2.8.7.4.3. Isolate or disconnect the power at the Motor Control Centre. If a single disconnect serves more than one starter Production Engineer must be advised.

4.2.2.8.7.4.4. Tagging

Tag main disconect and local panel ➔ Worker follow LOTO Procedure

4.2.2.8.7.4.5. Locking on main disconnect ➔ Worker follow LOTO Procedure

4.2.2.8.7.4.6. Try to restart motor with the switch at the motor.

4.2.2.8.7.5. **Permit Approval**

Same as Standard Safe Work Permit.

4.2.2.8.7.6. **Expiration /Renewal**

Same as Standard Safe Work Permit.

4.2.2.8.7.7. **Special Precautions**

When work is finished

4.2.2.8.7.7.1. Worker remove locks & tags.

4.2.2.8.8. **Equipment Line Opening Permit**

4.2.2.8.8.1. **Scope :**

All process line and equipment opening including opening flanges, unscrewing fitting, etc., opening vessels must be done by worker.

4.2.2.8.8.2. **Exception :**

Steam, water, air lines, routing sampling as listed in Process Operations Manual, Jobs for which a specific Standard Operating Procedure has been written or items containing water.

4.2.2.8.8.3. **Specific Rules**

BEFORE opening a vessel, Owner department and Maintenance personnel should also consider whether pyrophoric iron sulfide or other deposits may be present. If pyrophoric materials may be present,

personnel should follow the pyrophoric material ' s SDS as part of preparing and issuing the safe work permit.

4.2.2.8.8.4. **Preparation**

4.2.2.8.8.4.1. Close and tag any valves that could cause leak of liquid or gas.

4.2.2.8.8.4.2. The operating technician shall drain or de-pressure the system through a one inch or smaller valve if available.

4.2.2.8.8.5. **Permit Approval**

A positive check that the system is depressurized should be made before opening line and in presence of the permit approver.

4.2.2.8.8.6. **Expiration/Renewal**

Same as Standard Safe Work Permit.

4.2.2.8.8.7. **Special Precautions**

4.2.2.8.8.7.1. Drain of hydrocarbon substance shall be limited to less than 1 meter per second in order to prevent electrostatic charge.

4.2.2.8.8.7.2. Contain drain by bucket that must be grounded to pipe work.

4.2.2.8.9. **Crane/Heavy Lifting in Process Area Permit**

4.2.2.8.9.1. **Scope :**

This covers the procedures that must be followed whenever the following lift is required in to Restricted Area.

4.2.2.8.9.1.1. The lift if over critical areas / process equipment

4.2.2.8.9.1.2. The lift if very close to critical equipment

4.2.2.8.9.1.3. The load exceeds 80% of the load chart rating.

4.2.2.8.9.1.4. Two booms are required

4.2.2.8.9.1.5. The lift if Maintenance supervisor considers it is a critical lift.

4.2.2.8.9.2. **Specific Rules**

4.2.2.8.9.2.1. Use equipment that has its maximum permissible load clearly marked on it.

4.2.2.8.9.2.2. No weight shall be lifted or moved that is in excess of the permissible load of the lifting equipment.

4.2.2.8.9.2.3. Only people instructed in heavy lifting shall lift equipment as specified above.

4.2.2.8.9.2.4. Require special safety attention and communication in order to safeguard interfaces and adjacent activities

4.2.2.8.9.3. **Preparation**

Not Applicable

4.2.2.8.9.4. **Permit Approval**

Same as Standard Safe Work Permit.

4.2.2.8.9.5. **Expiration /Renewal**

Same as Standard Safe Work Permit.

4.2.2.8.9.6. **Special Precautions**

Not Applicable

4.2.2.8.10. **Vehicle Entry to Red A Area Permit**

4.2.2.8.10.1. **Scope :**

For entry of any motor vehicles (e.g. trucks or cranes) into Restricted Area.

4.2.2.8.10.2. **Exception :**

Approved plant forklift

4.2.2.8.10.3. **Specific Rules**

4.2.2.8.10.3.1. There must be NO plant upsets or hydrocarbon liquid spillage in the area which could potentially cause an unsafe condition.

4.2.2.8.10.3.2. If in hazardous area, an AA operator must be present at vehicle whenever its engine is running.

4.2.2.8.10.3.3. Flame arrester shall be covered to vehicle exhaust at entrance gate.

4.2.2.8.10.3.4. Parking in the Red A area is prohibited.

4.2.2.8.10.4. **Preparation**

Upon receipt of the request for a vehicle entry permit, the Owner department representative will prepare a Vehicle Entry Permit based on:

4.2.2.8.10.4.1. Understanding the nature and extent of the work to be done.

4.2.2.8.10.4.2. A review of the impact of the vehicle entry on the operability/safety of the process or general area by visiting the general areas where the vehicle(s) will enter, drive through and/or be operated.

4.2.2.8.10.4.3. A gas test of the areas affected by the vehicle entry. Ensure that the results of gas testing are included on the permit.

4.2.2.8.10.4.4. Ensure that all personnel who may be impacted by the vehicle entry are aware.

4.2.2.8.10.4.5. Ensure that the travel route is defined and communicated (including pathways, street names and/or gate numbers).

4.2.2.8.10.5. **Permit Approval**

If access multiple areas, Co-signed is recommended.

4.2.2.8.10.6. **Expiration /Renewal**

4.2.2.8.10.6.1. Initial vehicle entry must be made within 2 hours of any initial gas testing; if it does not, a new gas test will be required prior to entry.

4.2.2.8.10.6.2. **Special Precautions**

Not Applicable

4.2.2.8.11. **Roof Access Permit**

4.2.2.8.11.1. **Scope :**

Entry into any roof or above any ceiling in the factory. In general roof is not designed to support concentrated load & this includes men.

4.2.2.8.11.2. **Specific Rules**

4.2.2.8.11.2.1. Review job and roof structure.

4.2.2.8.11.2.2. Consider wearing harness with life line when walk on the roof.

4.2.2.8.11.3. **Preparation**

Same as Standard Safe Work Permit.

4.2.2.8.11.4. **Permit Approval**

Same as Standard Safe Work Permit.

4.2.2.8.11.5. **Expiration /Renewal**

Same as Standard Safe Work Permit.

4.2.2.8.11.6. **Special Precautions**

4.2.2.8.11.6.1. Provide planking.

4.2.2.8.11.6.2. See Work at high elevation Standard

4.2.2.8.12. **Work on High Pressure Washing (Water Jet)**

4.2.2.8.12.1. **Scope :**

Pressurized water sprayed at maximum 3600 psig (250 bar) provided that the flow is less than 3.5 gpm (13 liters/minute).

4.2.2.8.12.2. **Specific Rules**

4.2.2.8.12.2.1. The equipment used for jet water washing must be approved and certified, and checked immediately before use

4.2.2.8.12.2.2. Confined Space Entry requirement shall be followed when jet water washing is to take place in tanks, confined spaces and narrow spaces.

4.2.2.8.12.2.3. Person who is performing a water jet must have control the water pressure.

4.2.2.8.12.2.4. Run off water from water jet must be checked / treated to meet regulation/standard prior released to off-site.

4.2.2.8.12.3. **Preparation**

4.2.2.8.12.3.1. The water jet performer (worker) shall receive the necessary training and be familiar with the equipment that is to be used

4.2.2.8.12.3.2. The equipment to be used must be in working order and checked in accordance with the Regulations/Standard for jet water washing

4.2.2.8.12.3.3. Procedures/instructions with a specific description of the work to be performed must be available, reviewed and known

4.2.2.8.12.3.4. Work site and any necessary adjacent areas must be cordoned off/ signposted

4.2.2.8.12.3.5. Pressure gauges shall be provided for pressure test as per the following conditions:

4.2.2.8.12.3.5.1. At least two pressure gauges shall be provided

4.2.2.8.12.3.5.2. All pressure gauges shall be calibrated and certified.

4.2.2.8.12.3.6. A pressure relief valve shall be provided as safety measure for excess pressure.

4.2.2.8.12.3.7. Hose connection shall be protected by hose safety whip check.

4.2.2.8.12.4. **Permit Approval**

Additional beyond Standard Safe Work Permit but not limit to ;

4.2.2.8.12.4.1. A joint job site visit, i.e., a collective visit to the work site by an Owner department representative and a work crew representative.

4.2.2.8.12.4.2. Perform JSA at full assembly of water jet unit that demonstrates working conditions, safe guarding and workers ' posture during working.

4.2.2.8.12.5. **Expiration /Renewal**

Same as Standard Safe Work Permit.

4.2.2.8.12.6. **Special Precautions**

The performing worker must be equipped with ;

4.2.2.8.12.6.1. Non-skid boots with steel-enforced toe caps

4.2.2.8.12.6.2. Face shield or air-tight safety glasses

4.2.2.8.12.6.3. Double hearing protection such as earmuffs and earplugs

4.2.2.8.13. **Work on Radiograph Permit**

4.2.2.8.13.1. **Scope**

Work with radioactive materials covers all work with radioactive substances/ sources/isotopes

Radioactive sources are used for inspection and measurement purposes in various instruments. The source can normally be withdrawn into a shroud or housing in the instruments and this should be confirmed prior to carrying out nearby work by checking radiation dose rates. For extensive work, it may be necessary to remove the device to a secure source store to prevent it being damaged.

4.2.2.8.13.2. **Exception**

4.2.2.8.13.3. Open and close shuttler of nuclear source housing

4.2.2.8.13.4. **Specific Rules**

4.2.2.8.13.4.1. Tools and equipment should have pass Tools and Equipment inspection by CAP's ACI before used.

4.2.2.8.13.4.2. Before activity held, worker shall paging, installing warning decal & safety signs and inform to related Area Authority to prevent control system disturbance.

4.2.2.8.13.4.3. All radiation equipment shall be protect and have valid certificate from BATAN

4.2.2.8.13.4.4. Radiation watchman shall standby during activity

4.2.2.8.13.5. **Preparation**

Requirement and equipment shall be provided for radiation:

4.2.2.8.13.5.1.1. Licence from BAPETEN to use nuclear source usage

4.2.2.8.13.5.1.2. License for RPO (Radiation Protection Officer)

4.2.2.8.13.5.1.3. Shielding (Pb Plate)

4.2.2.8.13.5.1.4. Long tank

4.2.2.8.13.5.1.5. Survey meter

4.2.2.8.13.5.1.6. TLD and Pendos (Personal Dosimeter)

4.2.2.8.13.5.1.7. Hazard lamp

4.2.2.8.13.5.1.8. Crank out and hose

4.2.2.8.13.5.1.9. Collimator

4.2.2.8.13.5.1.10. Yellow barricade

4.2.2.8.13.5.1.11. Housing

4.2.2.8.13.5.1.12. Radiactive sign

4.2.2.8.13.6. **Permit Approval**

Same as Standard Safe Work Permit

4.2.2.8.13.7. **Expiration**

Same as Standard Safe Work Permit

4.2.2.8.13.8. **Special precaution**

4.2.2.8.13.8.1. Worker shall use TLD and Pendos

4.2.2.8.13.8.2. Use minimum level of radiograph as possible

4.2.2.8.13.8.3. The area must be roped off.

4.2.2.8.13.8.4. Radiation activity shall be covered with barricade and safety sign

4.2.2.8.14. **On Line Repairing Permit**

4.2.2.8.14.1. **Scope**

All Process and Utilities leak

4.2.2.8.14.2. **Exception**

Water services

4.2.2.8.14.3. **Specific Rules**

4.2.2.8.14.3.1. On-line leak repair job just be carefully reviewed by Day Supervisor and or Plant Superintendent with Maintenance Engineer to anticipate the potential adverse effect of repair.

4.2.2.8.14.3.2. Necessary precautions must be arranged with proper approval ie. flow reduced etc.

4.2.2.8.14.3.3. All safety equipment are standby ie. fire extinguisher, water spray etc.

4.2.2.8.14.3.4. Contingency plan for safe operation be reviewed with operating technician.

4.2.2.8.14.4. **Preparation**

Not applicable

4.2.2.8.14.5. **Permit Approval**

Same as Standard Safe Work Permit.

4.2.2.8.14.6. **Expiration**

Same as Standard Safe Work Permit

4.2.2.8.14.7. **Special precaution**

Not applicable

4.2.2.8.15. **Diving**

4.2.2.8.15.1. **Scope**

Apply to all diving activity in CAP

4.2.2.8.15.2. **Specific Rules**

4.2.2.8.15.2.1. Diver shall have valid cerficate depends on depth activity.

4.2.2.8.15.3. **Preparation**

4.2.2.8.15.3.1. Diver shall pass health check in the morning before start the activity by CAP's medic.

4.2.2.8.15.3.2. Diving watchman shall stadby during activity.

4.2.2.8.15.4. **Permit Approval**

Same as Standard Safe Work Permit

4.2.2.8.15.5. **Expiration**

Allowable time for diving is within 06.00 a.m until 18.00 p.m

4.2.2.8.15.6. **Special precaution**

During diving activity worker have to provide:

4.2.2.8.15.6.1. Flag Alpha

4.2.2.8.15.6.2. First aid box

4.2.2.8.15.6.3. Radio communication within worker and Jetty master (Only for jetty)

4.2.3. **Audit Requirement**

4.2.3.1. **General**

This standard requires auditing for compliance. Since this standard is a key to the interpretation of all CAP ' s Safety Standards. AA managers to which this standard applies, shall conduct periodic, routine Self Assessment to ensure conformance with the requirements of this standard.

The auditing of compliance with this standard or local (Indonesia ' s) applicable regulation whichever is more strengthen will be done with emphasis to include training, use, inspection, accident experience, documentation and appropriate procedures and practices.

Audits must be made annually or when a Safe Work is performed if the time between entries exceeds a year. Inefficiencies must be rectified and corrective actions documented in a timely manner.

4.2.3.2. **Effective use of Permit System**

Each department must establish a formalized and documented auditing process to evaluate the effectiveness of the department's written procedures for compliance with the Safe Work Permit procedures and responsibilities. These must include, but
is not limited to, the following:

4.2.3.2.1. A list of qualified people that are authorized to be Issuer / Approver for Safe Work Permit.

4.2.3.2.2. A random periodic audit of Safe Work jobs in progress.

4.2.3.2.3. Safe Work Permit crews to measure their knowledge of Safe Work Permit Standard.

4.2.3.2.4. List and posting of required "Safe Work" signs.

4.2.3.2.5. Percent Lower Explosive Limit and oxygen calibration (Portable Gas Detector Calibration Record).

4.2.3.2.6. Analysis of toxicity completed.

4.2.3.2.7. Documented employee training in Portable Gas Detector use.

4.2.3.2.8. Condition of emergency equipment.

4.2.3.2.9. Documented emergency procedures and rescue, procedures are in place and understood by Safe Work Permit crew.

4.2.3.3. **Ineffective use of Permit System**

4.2.3.3.1. **What's the problem ?**

An survey* showed that a third of all accidents in the chemical industry were maintenance-related, the largest single cause being a lack of, or deficiency in, permit-to-work systems. (*Ref; ISBN 0717613313 HSE's Chemical and Hazardous Installations Division www.hse.gov.uk)

4.2.3.3.1.1. Two-thirds of companies were not checking systems adequately;

4.2.3.3.1.2. Two-thirds of permits did not adequately identify potential hazards;

4.2.3.3.1.3. Nearly half dealt poorly with isolation of plant, electrical equipment, etc;

4.2.3.3.1.4. A third of permits were unclear on what personal protective clothing was needed;

4.2.3.3.1.5. A quarter of permits did not deal adequately with formal hand-back of plant once maintenance work had finished;

4.2.3.3.2. **Pitfalls of work permits**

Workers and supervisors do not always see the need for a safe work permit system. They have not been trained to recognize the added safeguards that such a program provides. Factors leading to ineffective permit systems are:

4.2.3.3.2.1. The type or format of the permit does not cover all the potential hazards.

4.2.3.3.2.2. The issuing procedure is inadequate.

4.2.3.3.2.3. The person signing the permit has not inspected the operation to see if the isolation, lock-out, or Testing has been done.

4.2.3.3.2.4. Workers are not following or don ′ t understand the requirements of the permit, especially the expiry time.

4.2.3.3.2.5. The employer is not enforcing or auditing the work permit system.

4.2.3.3.2.6. Permits are prepared too far in advance, or after the work have begun.

4.2.3.3.2.7. A responsible person is not inspecting the operation after the permit has been issued.

4.2.3.3.2.8. The system is too complex.

4.2.4. **Training Requirement**

4.2.4.1. **General requirement**

4.2.4.1.1. Safe work permit training is mandatory and essential to all people who are working in CAP.

4.2.4.1.2. This standard requires formalized training and documentation of training (Training shall be documented).

4.2.4.1.3. Retraining should be done when significant changes are made to the standard
and if there is reason to believe responsibilities or requirements are not understood.

4.2.4.1.4. Training for specific type of work permit shall be provided and must be completed as part of people qualification depended on individual role and responsibility

4.2.4.1.5. Training required by Indonesian ' s law must be trained in accordingly which are applicable.

4.2.4.2. **Training program (course)**

The following is minimum training program (course) to be available in COMPANY in order to cover all individual role& responsibility involved with Safe Work Permit.

4.2.4.2.1. **Safe Work Permit Awareness Training**

This training is mandatory for all new CAP employee. The permit awareness training shall be a part of orientation or plant safety orientation that aim to promote an awareness of how a work can be carried out safely in CAP. Qualification ;

4.2.4.2.1.1. Work that requires permit

4.2.4.2.1.2. Type and permitting process

4.2.4.2.1.3. The importance of the Safe Work Permit

4.2.4.2.1.4. What shall she/he involve when work under a safe work permit Retraining ;

4.2.4.2.1.5. Re-trained is required in event indicates a need.

4.2.4.2.2. **Safe Work Permit Training for Approver/ Receiver**

4.2.4.2.2.1. This training shall be provided to ;

4.2.4.2.2.1.1. The person from the facility / functional who responsible for approval (granting) the permit where the work will occur.

4.2.4.2.2.1.2. WEA, Representative of work crew and person who prepares the permit.

4.2.4.2.2.2. Qualification :

4.2.4.2.2.2.1. Knowledge of the boundaries of the area, the location of emergency response equipment, the operation of the facility and has a basic understanding of the equipment to be serviced.

4.2.4.2.2.2.2. Knowledge of day to day activities and conditions such that they can evaluate the impact that these activities and conditions will have on the work he/she is permitting and vice versa.

4.2.4.2.2.2.3. Knowledge of the Safe Work Standard and Safe work permit requirements by local regulation. His authority and limit to permit. His actions and consequence in permitting process.

4.2.4.2.2.2.4. Departmental procedure and /or work instruction related to the scope of the work being permitted i.e. Equipment & energy isolation, Lockout-Tag out Emergency procedures related to Safe Work & rescue practices etc.

4.2.4.2.2.2.5. Knowledge of hazards in the area and equipment and safeguards to eliminate or minimize those hazards. Job hazards (JSA) and area hazards evaluation tools & technique.

4.2.4.2.2.2.6. Chemical & Physical explosion limit & Personal protective equipment requirements.

4.2.4.2.2.2.7. Hand-on training on proper use of gas testing equipment i.e.%Lower Explosive Limit, % Oxygen.

4.2.4.2.2.2.8. Specific safety requirements for specific type of permit i.e. Knowledge of Hazardous area classification for Hot work permit,

Ventilation for confined space, knowledge of underground piping for excavation etc.

4.2.4.2.2.3. Retraining;

Re-trained shall be every 3 years or when new or modified procedures or methods are introduced or when an assessment, audit or event indicates a need for re-training.

4.2.4.2.3. **Individuals who works on a Safe Work Permit**

The training shall be provided to all work crew and any maintenance or construction people to confirm that they can perform their work/ job according to established safe work practices and the conditions specified in the permit. Work supervisor or Person who receive the permit is responsible to conduct this training (briefing). Discussion and two ways communication shall be used.

The training will be more effective if conducting such training in a short interval (within 15-20 mins) prior the work start to the crew who shall work for the job. No formal training is required.

4.2.4.2.3.1. Qualification :

4.2.4.2.3.1.1. Understand the job to be executed, Job hazards, area hazards and consequences. JSA shall be used and discussed.

4.2.4.2.3.1.2. Knowledge of Job safety observation

4.2.4.2.3.1.3. Proper protective equipment for working condition.K

4.2.4.2.3.1.4. Know the location and use of safety showers and eyewash stations,

4.2.4.2.3.1.5. Know the emergency alarms, evacuation procedures and assembly points assigned for the work/job

4.2.4.2.3.1.6. Know the specific safety requirement and job limitation in the permit

4.2.4.2.3.1.7. Understand use of communication tools and reporting an incident

4.2.4.2.3.1.8. Understand the housekeeping requirements.

4.2.4.2.3.2. Retraining ;

Re-trained shall be every job/work prior to start.

4.2.4.2.4. Specific requirements by Indonesian's law.

See "*Surat Keputusan Direktur Jenderal Pembinaan Pengawasan Ketenaga-kerjaan* No. Kep. 113/DJPPK/IX/2006" Notification on Confined Space Training.

4.2.4.3. **Trainer & Qualification**

Person who will be certified as CAP Trainer shall be ;

4.2.4.3.1. Senior worker (>10 service years) or supervisor level and up with technical, operation or maintenance background

4.2.4.3.2. Work experiences in permit approver level

4.2.4.3.3. Accomplished specific training as define by Indonesian's law from a qualified training agency.

4.2.4.3.4. Complete "Train the Trainer Program" as defined by Operation Excellent.

5. SAFETY & ENVIRONMENTAL ASPECT/IMPACT CONTROL

A/I No.	Activity	Operating Conditions		Significant Safety and Environmental		Prescribed Spec and Corrective/ Prev. Actions
		N	AN	Aspect	Impact	
	Safe Work Permit	√	-	-	-	

(NOTE: N= Normal, AN= Abnormal condition)

6. ATTACHMENT

Attachment No.	Title	No. of Pages
1.	List Jobs without permit	01
2.	Guidance for gas test period and work duration	01
3.	F2820-F0097-00 Permit to Work Form	01
4.	F2820-F0098-00 Work Permit Detail Form	01
5.	F2820-F0116-00 Cold Work Certificate Form	01
6.	F2820-F0117-00 Hot Work Certificate Form	02
7.	F2820-F0118-00 Confined Space Entry Certificate Form	02
8.	F2820-F0119-00 List of Worker, Tools & Equipment	02
9.	Workflow Permit to Work	01

7. REFERENCE

Document No.	Title	Location
PP 50 2012	Penerapan Sistem Menejemen Keselamatan dan Kesehatan Kerja	TQM
NFPA 51B	Standard fire prevention during cutting and other hot work	HSE
NFPA 497	Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical equipment	HSE
OSHA 29 CFR 1910.146	Confined spaced permit required	HSE
ISO 9001:2008	Quality Management System element 5,6 and 8	TQM
UU 10 1997	Ketenaganukliran	HSE
F2820-P0033	LOTO Procedure	TQM
F2820-P0043	Tools and Equipment Inspection Procedure	TQM
F2820-P0116	Safety Variance	TQM
OHSAS 18001:2007	Occupation Health and Safety Assessment Series element 3 and 4	TQM
ISO 14001:2004	Environmental Management System element 3 and 4	TQM

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F2811-F0023-00

PNEUMATIC TEST CHECKLIST

Chandra Asri Petrochemical

No	Checklist item	YES	NO	N/A
Document				
1	Do Permit to Work is on location?			
2	Do the equipment covered with calibration test certificate?			
3	Do JOHAN related with pneumatic job attached on location?			
4	Do calculation pressure test anout area effected radius attached on location?			
5	Do the design data attached on location?			
6	Do pressure up & holding curve document on location?			
7	Do pressure test to new pipe refer to B31.3 and old pipe to API570?			
8	Have dosument which identify part of assembly is being tested?			
Worker				
1	Do the job performed by competent worker?			
2	Do Supervisor/ Job Team leader/ HSE Officer standby on location?			
Equipment				
1	Equipment & its accesories already on location			
	a. Do the body of manifold have no rupture/ cracked?			
	b. Do hose's specification 150% from operating pressure?			
	c. Do hose whip check installed in all hose to hose or hose to manifold connection?			
	d. Do pressure gauge with 2 - 3 times of operating pressure installed on highest point & lowest point of piping system?			
	e. Do pressure safety valve installed on manifold?			
2	Do all connection fit enough?			
3	Do end cap installed according to minimum thickness of blind plate for pressure testing ?			
4	Do field instrument already removed, isolated, reinforced or replaced prior work start?			
5	Do manifold & pressure gauge already pass inspection?			
6	Do working area already barricaded as pressure test calculation and installed warning sign?			

Permit Authorize,

Name: .....

Date : .....

Chandra Asri Petrochemical

LIFE SAVING RULES PROCEDURE

Document No.	Revision No.	Revision Date (DD/MM/YY)	Page No.
F2820-P0118	00		1 of 10

APPROVAL

1. PREPARED BY

Name	Position	Signature	Date
Sentot Djoko Prabowo	HSE Technology & Audit Dept. Manager		04/01/2016

2. REVIEWED BY

Name	Position	Signature	Date
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Irma Y. Hattu	ERL General Manager		18/01-2016
Tira Hendrata	Management Representative		28 JAN 2016

3. APPROVED BY

Name	Position	Signature	Date
Piboon Sirinantanakul	Manufacturing Director		29/1/2016
Suryandi	HR & Corporate Admin Director		25/2/2016

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REVISION HISTORY

Revision No.	Effective Date	General Description of Revision
00	25 Feb.2016	Original procedure

APPROVED

TABLE OF CONTENT

1. PURPOSE

TUJUAN

Establish procedure as guidance to enforce self-discipline of employees complied with company life saving rules.

Menetapkan Prosedur sebagai pedoman untuk penegakan kedisiplinan terhadap seluruh karyawan berdasarkan Life Saving Rules yang berlaku di Perusahaan.

2. SCOPE

RUANG LINGKUP

This pprocedure is applied for all workers who are CAP, SMI and PBI employees and also contractors which have work or activities in surrounding CAP, SMI and PBI complex or area which under CAP, SMI and PBI management control.

Prosedur ini berlaku untuk semua pekerja CAP, SMI dan PBI maupun kontraktor yang mempunyai pekerjaan atau aktivitas di sekitar area atau kompleks CAP, SMI dan PBI atau yang dikontrol oleh management CAP, SMI dan PBI.

3. TERMS & DEFINITIONS

3.1 CAP : PT Chandra Asri Petrochemical Tbk.
3.2 SMI : PT Styrindo Mono Indonesia.
3.3 PBI : PT Petrokimia Butadiene Indonesia.
3.4 HSE : Health, Safety and Environment.
3.5 ERL : Employee Relations Division.
3.6 SP : Serikat Pekerja (Labor Union).
3.7 CLA : Collective Labor Agreement.
3.8 LSR : Life saving rules is the rules to saving life. “Life Saving Rules” are established based on practices or prohibition of unsafe activities according to the nature of risk in which CAP, SMI and PBI are facing. If someone does not follow these golden rules, it may cause a severe accident which leads to a fatality or loss of organ/ property.We believe that “Safety in the Workplace can only be achieved if everyone in the Organization has the basic Safety Awareness and help each other”:

3.8.1 Work with a valid work permit when required
3.8.2 Verify Isolation before work begins and use the specified life protecting equipment.
3.8.3 Protect yourself against a fall when working at height.
3.8.4 Obtain authorization before overriding or disabling safety critical Equipment.
3.8.5 Obtain authorization before entering a confined space.
3.8.6 Conduct Gas test when required.
3.8.7 Do not smoke outside designated areas.
3.8.8 Do not walk under a crane or a suspended load.

Life Saving Rules adalah peraturan untuk keselamatan jiwa. Life Saving Rules ditetapkan berdasarkan praktek atau larangan untuk bekerja yang tidak aman menurut risiko yang dimiliki oleh CAP, SMI dan PBI. Jika seseorang tidak mengikuti peraturan ini, maka bisa terjadi kecelakaan parah yang dapat mengakibatkan

kematian atau kehilangan anggota tubuh. Kami meyakini bahwa Keamanan dalam bekerja dapat dicapai jika semua orang dalam perusahaan mempunyai kesadaran tentang keselamatan dan saling menolong satu sama lain.

3.8.1 Bekerja dengan surat izin yang sesuai
3.8.2 Verifikasi isolasi sebelum pekerjaan dimulai & digunakan peralatankesalamatan yang sesuai equipment.
3.8.3 Lindungi diri dari jatuh saat bekerja di ketinggian.
3.8.4 Mendapatkan otorisasi sebelum menonaktifkan atau override safety critical equipment.
3.8.5 Memperoleh izin sebelum masuk Confined Space.
3.8.6 Melakukan gas test ketika diperlukan.
3.8.7 Dilarang merokok di luar area yang disediakan.
3.8.8 Dilarang berjalan di bawah crane/beban yang tergantung.

3.9 "**Golden Rules**" is a commitment between management, employee, and contractor to enforce and ensure that work safety rules and regulations are strictly adhered to in conducting activities in and around PT. Chandra Asri Petrochemical, PT. PBI, PT. SMI, Site Office, Head Office and areas of operations. This means the following:

"***Golden Rules**" adalah komitmen antara manajemen, employee, dan kontraktor untuk melaksanakan dan memastikan bahwa peraturan dan regulasi keselamatan kerja sangat melekat pada aktivitas di dalam PT. Chandra Asri Petrochemical, PT. PBI, PT. SMI, Site Office, Head Office dan area operation. Hal ini dijelaskan sebagai berikut :*

3.9.1 Every employee must know and strictly follow all the "Life Saving Rules".
Setiap karyawan harus mengetahui dan mengikuti semua prosedur Life Saving Rules.

3.9.2 These rules are not negotiable and cannot be compromised.
Peraturan ini tidak dapat dinegosiasikan dan tidak ada kompromi.

3.9.3 The responsibility for violating the "Life Saving Rules" shall not be limited only to the person who violated the rules, but also to all related persons who directly contributed to the working process.
Penanggung jawab untuk pelanggaran Life Saving Rules ini tidak dibatasi hanya kepada seseorang yang melanggar peraturan tetapi juga kepada setiap orang yang berhubungan secara langsung pada saat proses pekerjaan itu.

3.9.4 If it is found out that there is any employee who purposely intends to violate the rules, it will be assumed that he/ she does no longer want to work with the Company.
Jika ditemukan karyawan yang secara sengaja melanggar prosedur "Life Saving Rules", hal ini akan diasumsikan bahwa karyawan tersebut tidak ingin lagi bekerja di perusahaan ini.

3.10 Do & Don't List Life Saving Rules is a guidance to all employees/contractors to determine work that comply with Life Saving Rules or not.

Do & Don't List Life Saving Rules adalah daftar tindakan yang harus dan dilarang untuk dilakukan dalam suatu pekerjaan sesuai prosedur Life Saving Rules

3.11 Life saving rules violation is any violation activities which classified not comply with CAP, SMI and PBI Life Saving Rules, in this case violate the Don't list of Life saving rules that approved by CAP, , SMI and PBI management. The Violation Procedure can be seen at Life Saving Rules Violation Procedure.

Pelanggaran Life Saving Rules adalah apabila terdapat tindakan yang tidak sesuai dengan Life Saving Rules CAP, SMI dan PBI atau melakukan hal-hal yang termasuk dalam daftar tindakan yang dilarang untuk dilakukan (Don't List) dalam prosedur Life Saving Rules yang telah disetujui oleh manajemen CAP, SMI dan PBI. Prosedur Pelanggaran dapat dilihat pada Life Saving Rules Violation Procedure.

3.12 CAP, SMI and PBI employees are all of workers who hired by PT CAP, SMI and PBI and work under direct managing by CAP, SMI and PBI management.

Karyawan CAP, SMI dan PBI adalah pekerja yang direkrut oleh PT CAP, SMI dan PBI dan bekerja dibawah manajemen CAP, SMI dan PBI.

3.13 Non CAP, SMI and PBI employees/contractor areall workers from subcontractors, supplier, surveyors, etc who work at CAP, SMI and PBI complex and indirect manage by PT CAP, SMI and PBI management.

Karyawan Non CAP, SMI dan PBI adalah pekerja dari subkontraktor, supplier, surveyor, yang bekerja di lingkungan perusahaan CAP, SMI dan PBI dan secara tidak langsung dibawah manajemen PT CAP, SMI dan PBI.

4 RESPONSIBILITY & DESCRIPTION OF ACTIVITY

TANGGUNG JAWAB & DESKRIPSI AKTIVITAS

4.1 RESPONSIBILITY

4.1.1 Senior General Manager is accountable for implementation of this procedure.

Senior General Manager bertanggung jawab terhadap implementasi prosedur ini.

4.1.2 All managers, Superintendents, and Supervisors are responsible for the implementation of this procedure through his subordinates and to ensure all subordinates understood and comply of this procedure.

Semua Manager, Superintenden, dan Supervisor bertanggung jawab pada implementasi dari prosedur ini dan memastikan semua bawahannya mengerti dan bekerja sesuai dengan prosedur ini.

4.1.3 All employees are responsible to understand, implement, and comply of this procedure.

Semua karyawan harus mengerti dan mengimplementasikan prosedur ini.

4.1.4 HSE is responsible to campaign, promote, socialize, enforce of this procedure, verify violation report, do pre-investigation and investigation and provide pre-investigation and investigation report result.

HSE bertanggung jawab untuk melakukan kampanye, promosi, sosialisasi, melaksanakan prosedur ini, memeriksa laporan pelanggaran, melakukan pra-investigasi dan investigasi serta menyiapkan laporan hasil pra-investigasi serta hasil investigasi.

4.1.5 ERL is involved as member of investigation team and implement the HR director decision result as valid CLA.

ERL terlibat sebagai anggota tim investigasi dan melaksanakan hasil keputusan HR Director sesuai PKB yang berlaku.

4.1.6 Labor union is involved in the investigation as stipulation which arranged in the CLA.

Serikat Pekerja terlibat dalam investigasi sesuai dengan ketentuan yang diatur dalam PKB.

4.1.7 Supervisor/superior receive violation action report who did by his/her sub-ordinate.

Atasan menerima laporan tindakan pelanggaran yang dilakukan oleh bawahannya.

4.1.8 Finder is all CAP, SMI and PBI employees who see and find violation indication which have to be reported to superior and/or HSE.

Orang yang mengetahui adanya tindakan pelanggaran (Penemu) adalah seluruh karyawan CAP, SMI dan PBI yang melihat dan menemukan adanya indikasi pelanggaran yang wajib melaporkan kepada atasan dan/atau HSE.

4.2 PREPARING LIFE SAVING RULES

PERSIAPAN LIFE SAVING RULES

4.2.1 Life Saving Rules Program had been prepared by HSE.

Program Life Saving Rules disiapkan oleh tim HSE.

4.2.2 HSE Team conduct familiarization to all employees related valid Life Saving Rules, including its revisions if any.

Tim HSE melakukan sosialisasi kepada seluruh karyawan tentang prosedur Life Saving Rules yang berlaku berikut perubahan-perubahannya apabila ada.

4.3 DO AND DON'T LIST LIFE SAVING RULES

DO AND DON'T LIST LIFE SAVING RULES

4.3.1 Do List is a guidance for all activites that have to be done during working as Life Saving Rules procedure.

Do List Life Saving Rules adalah daftar tindakan yang harus dilakukan dalam suatu pekerjaan sesuai prosedur Life Saving Rules.

4.3.2 Don't List is a guidance for all activites that prohibit to be done during working as Life Saving Rules procedure. If there is a violation related to Don't List, violator will be processed as valid stipulation.

Don't List Life Saving Rules adalah daftar tindakan yang dilarang untuk dilakukan dalam suatu pekerjaan sesuai prosedur Life Saving Rules. Jika melakukan tindakan yang tercantum dalam Don't List maka pelanggar akan ditindak sesuai ketentuan yang berlaku.

4.3.3 Do and Don't List mentioned in the Life Saving Rules Handbook which will be given to all CAP, SMI and PBI employees and also contractor as guidance during working di the CAP, SMI and PBI area.

Do dan Don't List dimuat dalam Life Saving Rules Handbook yang akan diberikan kepada semua Karyawan CAP, SMI dan PBI serta kontraktor sebagai pedoman dalam melakukan pekerjaan di lingkungan CAP, SMI dan PBI.

4.4 LIFE SAVING RULES IMPLEMENTATION

IMPLEMENTASI LIFE SAVING RULES

4.4.1 Life Saving Rules Communication &Training

Komunikasi & Pelatihan Life Saving Rules

4.4.1.1 All About related Life Saving Rules are already covered in the Life Saving Rules Handbook.

Segala sesuatu yang berkaitan dengan Life Saving Rules sudah termuat dalam Life Saving Rules Handbook.

4.4.1.2 All CAP, SMI and PBI employees, including new employees and contractor, will have training and socialization related Life Saving Rules (refer to Attachment No. 3) and also have to sign the commitment letter.

Seluruh karyawan CAP, SMI dan PBI, termasuk karyawan baru dan kontraktor, akan mendapatkan pelatihan dan sosialisasi mengenai Life Saving Rules (merujuk ke Lampiran No. 3) serta wajib menandatangani Surat Pernyataan (komitmen).

4.4.1.2.1 HSE Department is responsible to campaign, promote, training and socialize about Life Saving Rules implementation.

Departemen HSE bertanggung jawab untuk kampanye, promosi, pelatihan dan sosialisasi tentang implementasi Life Saving Rules

4.4.1.2.2 Shift employees have to conduct Safety Talk with topic related to current work and have relation with Life Saving Rules every changing shift.

Karyawan shift harus mengadakan Safety Talk dengan topik yang berhubungan dengan pekerjaan saat itu yang terkait dengan Life Saving Rules tiap pergantian shift.

4.4.1.2.3 Every Department/Section must include the Life Saving Rules topic that have relation with their activities in regular meeting, at least twice a month

Setiap Departemen/Section harus memasukkan topik Life Saving Rules yang berhubungan dengan aktivitas dalam rapat rutin, minimal dua kali dalam sebulan.

4.4.2 Life Saving Rules Reviewing

Peninjauan Ulang Life Saving Rules

Life Saving Rules is reviewed regularly once per 3 years, or when any additional or reducing the content of Life Saving Rules. It will be done by HSE and discussed with ERL and Labor Union, and finally approved by Manufacturing Director & HR Director.

Life Saving Rules di tinjau kembali sekali dalam 3 tahun, atau jika ada penambahan atau pengurangan pada isi dari Life Saving Rules. Hal ini akan dipersiapkan oleh tim HSE dan diskusikan dengan ERL dan Sarikat pekerja, dan akan di setujui oleh Direktur Manufaktur dan Direktur HR.

5. SAFETY & ENVIRONMENTAL ASPECT/IMPACT CONTROL

A/I No.	Activity	Operating Conditions		Significant Safety and Environmental		Prescribed Spec and Correlative/ Prev. Actions
		N	AN	Aspect	Impact	
	Do & Don't List Guidance to Life Saving Rules		√	Safety	Person, Environment, Asset and Reputation	Comply with HSE Requirement

6. ATTACHMENT

Attachment No.	Title	No. of Pages
1	Life Saving Rules Do & Don't Item List	8
2	Life Saving Rules Violation Item List	8
3	Life Saving Rules Training Matrix	1

7. REFERENCES

Document No.	Title	Location
PP 50 Th.2012	Man power ministry PP 50 2012 SMK3 element 6	TQM
	Collective Labor Agreement (PKB) CAP, SMI and PBI	Employees
	Code Of Conduct CAP, SMI and PBI	Employees
LSR Handbook	Life Saving Rules Handbook	SHE
OHSAS 18001:2007	Occupational Health and Safety Assessment Series OHSAS 18001:2007	TQM
ISO 14001:2004	Environmental Management System ISO 14001:2004	TQM
ISO 9001:2008	Quality Management System ISO 9001:2008	TQM

APPROVED

Chandra Asri Petrochemical

INCIDENT REPORTING AND INVESTIGATION STANDARD

Document No.	Revision No.	Revision Date (DD/MM/YY)	Page No.
F2820-P0019	**04**	**07/02/18**	**1 of 21**

APPROVAL

1. PREPARED BY

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2. REVIEWED BY

Name	Position	Signature	Date
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Name	Position	Signature	Date
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REVISION HISTORY

Revision No.	Effective Date	General Description of Revision
00	08 Jul 2011	Original procedure. This original procedure will replace Proc. No. SED1-DIV-0019 title" Injury/Illness Report".
01	17 Oct 2012	Synchronization with OSHA Medical Treatment and First aid categories.
02	01 Sep 2015	To revise investigation step become pre-investigation step, To revise Pre-Investigation team members and scope, To revise AIN classification, To include Pre-Investigation if any Disease related work reported, To revise AIN Pre-Investigation & its completion time, To provide Executive Summary Report & its completion time.
03	22 Sep 2016	To revise Accident, Incident, Near-miss (AIN) definition become Incident, To revise incident classification based on API 754, To add CAR & PAR monitoring, To change in new procedure format.
04	07 Feb 2018	To change in new procedure format To add work illness To add term and definition To change some rule of parameter

TABLE OF CONTENTS

1. PURPOSE

This procedure aims to provide guidance on how to identify, report and investigate the Incident that happened to people or property in work places of CAP, SMI and PBI.

Prosedur ini bertujuan untuk memberikan petunjuk bagaimana mengidentifikasi, melaporkan dan menyelidiki Insiden yang terjadi terhadap seseorang atau asset perusahaan yang berada di area CAP, SMI dan PBI.

2. SCOPE

This procedure encompasses the reporting and investigation of Incident in the "work places" of CAP and its subsidiary.

Prosedur ini meliputi pelaporan dan penyelidikan Insiden di area CAP dan beserta anak usahanya.

3. BACKGROUND

3.1. Work incident is event that unwanted and unexpected by everyone. If incident happened, shall conduct reporting and investigation in order that accident not happen again anymore in the future.

Insiden kerja adalah kejadian yang tidak diinginkan dan diharapkan oleh semua orang. Jika kecelakaan terjadi, harus dilakukan pelaporan dan investigasi agar kecelakaan tidak terjadi kembali di masa mendatang.

3.2. As compliance of occupational health and safety regulation such as SMK3, Process Safety Management (PSM), OSHA, API RP754, Responsible Care code (RC code)
Sebagai pemenuhan regulasi keselamatan dan kehatan kerja antara lain SMK3, Process Safety Management (PSM), OSHA, API RP754, *Responsible Care code (RC code).*

4. TERMS & DEFINITIONS

4.1. CAP : PT Chandra Asri Petrochemical Tbk
CAP : PT Chandra Asri Petrochemical Tbk

4.2. SMI : PT Styrindo Mono Indonesia
SMI : PT Styrindo Mono Indonesia

4.3. PBI : PT Petrokimia Butadiene Indonesia
PBI : PT. Petrokimia Butadien Indonesia

4.4. AA : Area Authority (Owner Area).
AA : Tuan rumah (Pemilik area kerja).

4.5. WEA : Work Execution Authority (Performing Area).
WEA : Pihak yang mendapat izin bekerja di area AA.

4.6. Direct supervisor of the casualty (employee/contractor)
Atasan langsung dari korban (karyawan/kontraktor)

4.7. Casualty (Injured people)

Korban (orang yang terluka)

4.8. Witness(es)

Saksi (saksi-saksi)

4.9. Off The Jobs Safety is defined broadly to refer to the conditions and practices that occur outside of the workplace and impact the safety issue. This includes everything from motor vehicle crashes.

Off The Jobs Safety didefinisikan secara luas untuk merujuk pada kondisi dan praktek-praktek yang terjadi di luar tempat kerja dan berdampak pada masalah keselamatan. Ini termasuk segala sesuatu dari kecelakaan kendaraan bermotor.

4.10. Work related illness is presumed for injuries and illness resulting from events or exposures occurring in the work environment *(refer to OSHA 1904.5 (a))*.

Penyakit akibat kerja dianggap sebagai cedera dan penyakit akibat peristiwa atau eksposur yang terjadi di lingkungan kerja (refer to OSHA 1904.5 (a)).

4.11. Work environment is the establishment and other locations where one or more employees are working or are present as a condition of their employment. The work environment includes not only physical locations but also the equipment or materials used by the employee during course of his or her work *(refer to OSHA 1904.5(b)(1)))*.

Lingkungan kerja adalah tempat yang telah ditetapkan dan lokasi lain di mana satu atau lebih karyawan yang bekerja atau hadir sebagai syarat pekerjaan mereka. Lingkungan kerja tidak hanya mencakup lokasi fisik tetapi juga peralatan atau bahan yang digunakan oleh karyawan selama bekerja (refer to OSHA 1904.5(b)(1))).

4.12. Loss of Primary Containment (LOPC) is an unplanned or uncontrolled release of any material from primary containment, including non-toxic and nonflammable materials (e.g. steam, hot condensate, nitrogen, compressed CO_2 or compressed air).

Loss of Primary Containment (LOPC) adalah sebuah pelepasan semua bahan yang tidak terencana atau terkontrol dari penampungan utama, termasuk bahan tidak beracun dan tidak mudah terbakar (contoh : steam, kondensat panas, nitrogen, CO_2 bertekanan atau udara bertekanan).

4.13. Process Safety Event (PSE) is an unplanned or uncontrolled fire, explosion, property damage, LOPC of any material including non-toxic and non-flammable materials (e.g. steam, hot condensate, nitrogen, compressed CO2 or compressed air) from a process, or an undesired event or condition that, under slightly different circumstances, could have resulted in a LOPC of a material or process involvement.

Process Safety Event (PSE) adalah sebuah kebakaran,ledakan, kerusakan aset, LOPC yang tidak terencana atau terkontrol dari semua bahan termasuk bahan tidak beracun dan tidak mudah terbakar (seperti steam, kondensat panas, nitrogen, CO2 bertekanan, atau udara bertekanan) dari sebuah proses, atau sebuah kejadian yang tidak diinginkan atau kondisi yang dalam keadaan yang sedikit berbeda, dapat mengakibatkan LOPC dengan material proses produksi.

4.14. Non-Process Safety Event (Non-PSE) is an unplanned or uncontrolled fire, explosion, property damage LOPC and or incident of any material including non- toxic and non-

flammable materials (e.g. steam, hot condensate, nitrogen, compressed CO2 or compressed air) from a process, or an undesired event or condition that, under slightly

different circumstances, could have resulted in a LOPC of a material **without** process involvement.

Non-Process Safety Event (PSE) adalah sebuah kebakaran,ledakan, kerusakan asset, LOPC dan atau insiden yang tidak terencana atau terkontrol dari semua bahan termasuk bahan tidak beracun dan tidak mudah terbakar (seperti steam, kondensat panas, nitrogen, CO2 bertekanan, atau udara bertekanan) dari sebuah proses, atau sebuah kejadian yang tidak diinginkan atau kondisi yang dalam keadaan yang sedikit berbeda, dapat mengakibatkan LOPC dengan tidak melibatkan proses produksi.

4.15. Primary containment is a tank, vessel, pipe, truck, rail car, or equipment intended to serve as the primary container or used for processing or transfer of material.

Primary containment adalah sebuah tangki, bejana, pipa, truk, mobil rel, atau peralatan yang dimaksudkan untuk digunakan sebagai penampung utama atau digunakan untuk memproduksi atau mentransfer material.

4.16. Process is production, distribution, storage, utilities, or pilot plant facilities used in the manufacture of petrochemical and petroleum refining products. This includes process equipment (e.g. reactors, vessels, piping, furnaces, boilers, pumps, compressors, exchangers, cooling towers, refrigeration systems, etc.), storage tanks, ancillary support areas (e.g. boiler houses and waste water treatment plants), on-site remediation facilities, and distribution piping under control of the Company.

Proses adalah produksi, distribusi, penyimpanan, utilitas, atau fasilitas pabrik percobaan yang digunakan dalam manufaktur petrokimia dan produk hasil pengolahan perminyakan. Ini termasuk peralatan proses (contoh : reactor, bejana, perpipaan, furnaces, boilers, pompa, kompresor, exchangers, cooling towers, sistem refrigerant, dll), tangki penyimpanan, area pendukung tambahan (contoh : rumah boiler dan pabrik pengolahan limbah air), fasilitas remediasi di tempat, dan distribusi perpipaan di bawah kontrol perusahaan.

4.17. Process involvement is any activities directly involved in the incident.

Keterlibatan proses adalah segala aktifitas yang menyebabkan insiden secara langsung.

4.18. Pressure Relief Device (PRD) is a device designed to open and relieve excess pressure (e.g. safety valve, thermal relief, rupture disk, rupture pin, deflagration vent, pressure/vacuum vents, etc.).

Pressure Relief Device (PRD) adalah sebuah alat yang didesain untuk membuka dan melepaskan tekanan berlebih (contoh : safety valve, thermal relief, rupture disk, rupture pin, deflagration vent, pressure/vacuum vents, dll).

4.19. Incident is an event that is not desired and is not suspected initially that cause injury/illness, property damage, environmental incident and/or fire/explosion and other hazardous events.

Insiden adalah suatu peristiwa yang tidak diinginkan dan tidak diduga awalnya yang menyebabkan cedera/sakit, kerusakan properti, kerusakan/pencemaran lingkungan dan/atau kebakaran/ledakan dan peristiwa berbahaya lainnya.

4.20. Near Miss is an is an unplanned event that did not result in injury, illness, or damage – but had the potential to do so, it can result in more severe incident. Near miss shall be investigated when potentially causes injury, health symptom or environment issue.

Near Miss adalah kejadian yang tidak diinginkan tidak menimbulkan cidera, sakit atau kerusakan, tetapi memiliki potensi untuk menimbulkannya (kecelakaan)yang lebih berat. Near miss harus diinvestigasi jika berpotensi menyebabkan cidera, ganguan kesehatan atau permasalahan lingkungan.

4.21. Recordable injury is a work related injury that results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or a significant injury diagnosed by physician or other licensed health professional.

Recordable injury adalah cedera/luka yang berhubungan dengan pekerjaan yang mengakibatkan hal-hal berikut: kematian, tidak dapat kembali bekerja, keterbatasan bekerja atau dialihkan ke tugas lain, penanganan medis yang lebih dari pertolongan pertama, hilang kesadaran, atau luka yang lebih parah dengan diagnosa oleh Dokter atau tenaga kesehatan yang berlisensi lainnya.

4.22. Non Recordable incident case a work related injury that results in any of the following : off the job safety, Near miss, severity case on class III (see incident classification)

Kasus insiden yang Non recordable adalah cedera/luka yang berhubungan dengan pekerjaan yang mengakibatkan hal-hal berikut: off the job safety, Near miss, kasus dengan kosekuensi pada kelas III (lihat klasifikasi incident)

4.23. Fatality or Permanent Disability accident is Workplace Accident that resulted in loss of life or permanent disability.

Kematian atau cacat tetap accident adalah Kecelakaan kerja yang mengakibatkan kematian atau cacat tetap.

4.24. Lost Time Accident (LTA) is an accident that causes the workers can not perform his job within 2 x 24 hours and or permanent disability *(refer permenakertrans per-men/01/2007).* Lost working time is not taken into account in case of accidents as a result of war, natural disasters and others are beyond the control of the company (refer to Surat Keputusan Direktur Jenderal Pembinaan Hubungan Industrial dan Pengawasan ketenagakerjaan No.KEP 723/BW/2000). For internal CAP purpose, LTA is an accident that causes the workers can not perform his job within 1 x 24 hours and or permanent disability.
Lost Time Accident (LTA) adalah kecelakaan yang mengakibatkan pekerja tidak dapat melakukan pekerjaannya dalam waktu 2 x 24 jam dan atau cacat permanen mengacu permenakertrans per-men/01/2007). Lost Time Accident (LTA) tidak diperhitungkan apabila terjadi kecelakaan sebagai akibat perang, bencana alam dan lain-lain yang diluar kontrol perusahaan (Mengacu kepada Surat Keputusan Direktur Jenderal Pembinaan Hubungan Industrial dan Pengawasan ketenagakerjaan No.KEP 723/BW/2000). Untuk tujuan internal CAP, LTA adalah kecelakaan yang mengakibatkan pekerja tidak dapat melakukan pekerjaannya dalam waktu 1 x 24 jam dan atau cacat permanen.

4.25. Medical Treatment Assistance (MTA) [Refer to OSHA 1904.7(b)(5)(i)], see attachment No.1, is Injuries requiring treatment from a recognized health care providers, and after that, return to do the job less than 1 x 24 hours.

Medical Treatment Assistance (MTA) [Mengacu kepada OSHA 1904.7 (b)(5)(i)], lihat lampiran No. 1, adalah cedera/luka yang membutuhkan perawatan dari tenaga medis yang diakui, dan setelah itu dapat kembali melakukan pekerjaan kurang dari 1 x 24 jam.

4.26. First Aid Assistance (FAA) [Refer to OSHA 1904.7(b)(5)(ii)(A)] see attachment no.1, is when a people, as a result of an accident in the workplace receives on-site first aid assistance from the company doctor and he/she can return to work within 1 x 24 hours.(Refer to Attachment 1.List of Accident included in FAA).

First Aid Assistance (FAA) [Refer to OSHA 1904.7(b)(5)(ii)(A)] lihat lampiran No. 1, adalah pertolongan pertama yang diberikan oleh Dokter Perusahaan kepada Pekerja yang mengalami kecelakaan di tempat kerja dan dapat kembali bekerja dalam waktu 1 x 24 jam.

4.27. Property Damage is when there is a damage to the company properties due to an incident such as: equipment broken, building broken, vehicles broken, etc.

Property Damage adalah kerusakan pada asset perusahaan dikarenakan suatu kejadian seperti: peralatan yang rusak, bangunan rusak, kendaraan rusak, dll.

4.28. Environmental Incident is an incidental discharge of undesired a physical, biological or chemical substance into the environment.

Environmental Incident adalah kerusakan/pencemaran lingkungan yang diakibatkan oleh pembuangan/kebocoran insidental yang tidak diinginkan berupa zat secara fisik, biologi atau kimia ke dalam lingkungan.

4.29. Fire and or Explosion is an event where undesired combustion and/or explosion occurs.

Fire and or Explosion adalah suatu kejadian di mana terjadi kebakaran dan/atau ledakan yang tidak diinginkan.

4.30. Direct cost *(see attachment-11 incident cost calculation)* is cost of repairs or replacement, cleanup, material disposal, environmental remediation and emergency response. Direct cost does not include indirect costs, such as business opportunity, business interruption and feedstock/product losses, loss of profits due to equipment outages, costs of obtaining or operating temporary facilities, or costs of obtaining replacement products to meet customer demand. Direct cost does not include the cost of the failed component leading to LOPC, if the component is not further damaged by the fire or explosion.

Direct cost adalah biaya perbaikan atau penggantian, pembersihan, pembuangan bahan, remediasi lingkungan dan tamnggap darurat. Direct cost tidak termasuk biaya tidak langsung, seperti peluang bisnis, gangguan bisnis dan kehilangan bahan baku/produk, kehilangan keuntungan karena peralatan dihentikan, biaya memperoleh atau mengoperasikan fasilitas sementara, atau biaya memperoleh penggantian produk untuk memenuhi permintaan pelanggan. Direct cost tidak termasuk biaya dari bagian yang rusak sehingga mengakibatkan LOPC, jika bagian tersebut tidak rusak lebih jauh oleh kebakaran atau ledakan.

4.31. Indirect costs are costs that are not directly accountable to a cost incident (such as a business impact, facility, function or product). Indirect costs may be either fixed or variable. Indirect costs include administration, legal and security costs. These are those costs which are not directly related to production or mitigation of incident.

Biaya tidak langsung adalah biaya yang tidak secra langsung diakibatkan oleh insiden (seperti dampak bisnis, fasilitas, fungsi atau produk). biaya tidak langsung bisa berbentuk tetap atau variabel. Biaya tidak langsung meliputi biaya administrasi, hukum dan keamanan. Ini adalah biaya-biaya yang tidak langsung berhubungan dengan produksi atau penanganan kecelakan.

4.32. Incident Frequency Rate = (Number of accident x 1,000,000) / (Man-hours worked)

Tingkat Kekerapan kecelakaan = (JumlahKecelakan x 1.000.000) / Jumlah Jam Orang

4.33. Severity Rate = (Number of days Lost x 200,000) / (Man-hours worked)

Tingkat Keparahan = (Jumlah Hari Hilang x 200.000) / Jumlah Jam Orang

4.34. Lost Time Case Rate (LTCR) = (Number of LTA x 200.000) / Man-hours worked

Lost time case rate = (Jumlah kejadian LTA x 200.000) / Jumlah Jam Orang

4.35. Witness is the one who can give an explanation of something that directly see, hear, and or experienced on accident and or incident.

Saksi adalah orang yang bisa memberikan penjelasan mengenai masalah yang terjadi baik dengan melihat langsung, mendengar, dan atau mengalami kecelakaan/kejadian.

4.36. Expert witness is Other people as deemed necessary by pre-investigation team such as an employee who understands equipment or processes associated with the Incident.

Saksi ahli adalah Orang lain yang benar-benar dibutuhkan oleh tim Pra-Investigasi seperti karyawan yang paham dengan suatu alat atau proses yang terkait dengan Insiden.

4.37. Incident Classifications:

Klasifikasi Insiden:

Indicators \ Severity	Process Safety Event (PSE)			Non-Process Safety Event (Non-PSE)			Remark
	Recordable		*Non-Recordable*	*Recordable*		*Non-Recordable*	
	Class I	Class II	Class III	Class I	Class II	Class III	
1. Injury / Illness	Fatality; Lost Time Accident (LTA); Permanent Total Disability (PTD)	Medical Treatment Assistance (MTA)	First Aid Assistance (FAA)	Fatality; Lost Time Accident (LTA); Permanent Total Disability (PTD)	Medical Treatment Assistance (MTA)	First Aid Assistance (FAA)	Employee, Contractor, Sub-Contractor, Third Party
2. Fire or Explosion Incident	Damage ≥ $25000 of direct cost	Damage < $25000 and ≥ $2500 of direct cost	Damage < $2500 of direct cost	Damage ≥ $25000 of direct cost	Damage < $25000 and ≥ $2500 of direct cost	Damage < $2500 of direct cost	Not include loss of production
3. Property Damage Incident: Vehicle, Equipment, Building, etc	Damage ≥ $25000 of direct cost	Damage < $25000 and ≥ $2500 of direct cost	Damage < $2500 of direct cost	Damage ≥ $25000 of direct cost	Damage < $25000 and ≥ $2500 of direct cost	Damage < $2500 of direct cost	Not include loss of production
4. Environment Incident	- Release of material > threshold quantity (TQ) in any one-hour period at Table-1 (exclude PRD) - an officially declared community evacuation or community shelter-in-place	Release of material > threshold quantity (TQ) in any one-hour period at Table-2 (exclude PRD)	Release of material < threshold quantity (TQ) in any one-hour period at Table-2 (exclude PRD)	- Release of material > threshold quantity (TQ) in any one-hour period at Table-1 (exclude PRD) - an officially declared community evacuation or community shelter-in-place	Release of material > threshold quantity (TQ) in any one-hour period at Table-2 (exclude PRD)	Release of material < threshold quantity (TQ) in any one-hour period at Table-2 (exclude PRD)	
				Non Recordable			
5. Near Miss	N/A					Any undesire condition promote incident	No damage and incident
6. Off The Job Safety	N/A			Fatality; Lost Time Accident (LTA); Permanent Total Disability (PTD)	Medical Treatment Assistance (MTA)	First Aid Assistance (FAA)	Focus on employee driving policy

5. SAFETY AND ENVIRONMENTAL CONTROL

5.1. SAFETY HAZARD IDENTIFICATION

HIRADC No.	Activity	Operating Conditions		Safety Control		Prescribed Spec and Corrective/ Prev. Actions
		N	AN	Hazard	Consequence	
	NA					

NOTE: *N= Normal, AN= Abnormal condition*

5.2. ENVIRONMENT ASPECT/IMPACT IDENTIFICATION

A/I No.	Activity	Operating Conditions		Significant Environmental		Prescribed Spec and Corrective/ Prev. Actions
		N	AN	Aspect	Impact	
	NA					

NOTE: *N= Normal, AN= Abnormal condition*

5.3. PRECAUTION AND MITIGATION

ACTIVITIES	ACCIDENT	PRECAUTION	MITIGATION
	NA		

5.4. PERSONAL PROTECTIVE EQUIPMENT

Activity	Area	Mandatory PPE (Y/N)	Specific PPE Needed
N/A			

5.5. EMERGENCY MANAGEMENT

Activity	Area	Emergency Case	Actions
N/A			

5.6. ENERGY CONCERN

SEU No.	SEU Description	Activities	Energy Aspect	
			Steam	Electricity
	N/A			

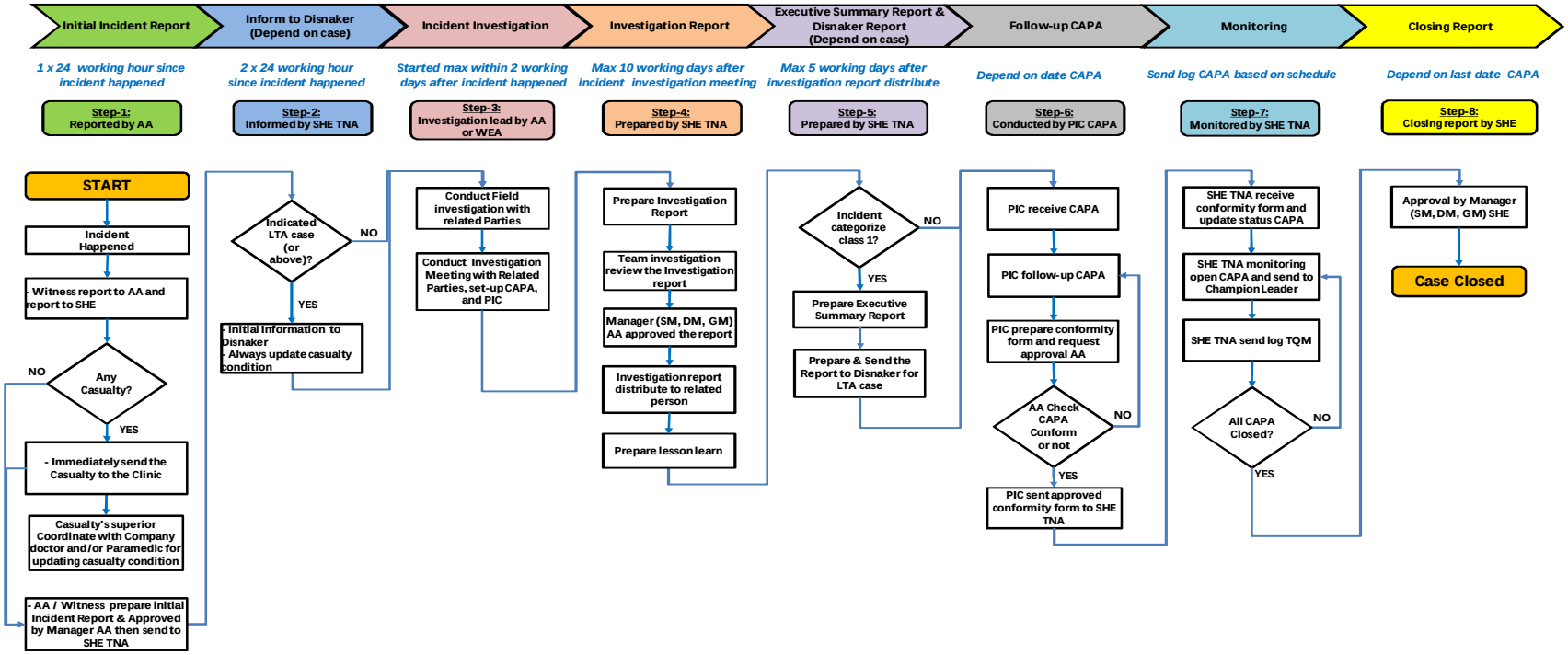
6. ROLES, RESPONSIBILITIES & QUALIFICATIONS

Roles	Responsible Person(s)	Qualifications
6.1. Related Manager (GM/DM/SM)	6.1.1. GM or DM Lead investigation for Class-1&2 incident categorized *GM atau DM memimpin investigasi untuk kategori insiden kelas 1&2* 6.1.2. SM or above lead investigation for class-3 incident categorized	Has been socialized procedure F2820-P0019

	SM atau yang diatasnya memimpin investigasi untuk kategori kelas 3	
6.2. SHE General Manager	6.2.1. Involve for all investigation incident class 1 *terlibat dalam tim untuk semua investigasi insiden kelas 1*	Has been socialized procedure F2820-P0019
6.3. SHE Technology and Audit Department Manager	6.3.1. Involve for all investigation incident and share initial report to all DM and GM *Terlibat dalam tim untuk seluruh investigasi insiden dan membagi initial report kepada seluruh DM dan GM*	Has been trained SCAT, FTA, Investigation Technique
6.4. SHE Audit	6.4.1. As secretary for investigation incident committee *Sebagai sekertaris tim untuk komite investigasi insiden* 6.4.2. Conduct field investigation for all incidents with related parties *Melakukan investigasi lapangan untuk semua insiden dengan pihak terkait* 6.4.3. Coordinate with company doctor if any casualty *Koordinasi dengan dokter perusahaan jika terdapat korban* 6.4.4. Scheduling for investigation meeting with related parties *Mengatur jadwal rapat investigasi dengan pihak terkait* 6.4.5. Make executive summary report *Membuat laporan executive summary* 6.4.6. Follow up CAR & PAR closing and coordinate with TQM department *Tindak lanjut penyelesaian CAR & PAR dan koordinasi dengan departemen TQM* 6.4.7. Make incident investigation report *Membuat laporan investigasi insiden* 6.4.8. Make weekly safety talk material if needed *Membuat bahan safety talk mingguan*	Has been trained SCAT, FTA, Investigation Technique
6.5. FFS Section Manager	6.5.1. Involve for investigation fire incident *terlibat dalam tim untuk rapat investigasi insiden kebakaran* 6.5.2. Conduct field investigation for all fire incidents *Melakukan investigasi lapangan untuk semua insiden kebakaran*	Has been socialized procedure F2820-P0019

6.6. SHE Operation	6.6.1. Collect all data from incident *Mengumpulkan semua data dari insiden* 6.6.2. Secure incident location *Mengamankan lokasi insiden* 6.6.3. Inform to disnaker if LTA happened *Menginformasikan ke disnaker jika terjadi LTA*	Has been socialized procedure F2820-P0019
6.7. Related Operation / Maintenance in incident	6.7.1. Report to direct superior / SHE division if incident happened *Melaporkan ke atasan langsung / divisi SHE jika terjadi kecelakaan* 6.7.2. Make incident preliminary report *Membuat laporan awal insiden*	Has been socialized procedure F2820-P0019

7. DESCRIPTION OF ACTIVITIES



Incident Investigation Flowchart

Diagram Alir Investigasi Insiden

7.1. Incident Official Reporting

Pelaporan Incident secara resmi

Executor	Description
Area Authority	7.1.1. Incident initial report (see Attachment-2) shall be issued by AA to SHE Division after Incident happened. Incident Initial report is issued by superior of casualty's accident or worker's superior who execute the job.at least supervisor level. *Laporan awal Insiden (lihat lampiran-2) harus dibuat oleh AA ke Divisi SHE setelah Insiden terjadi. Laporan awal Insiden dibuat oleh atasan korban kecelakaan atau atasan pekerja yang melakukan pekerjaan.setidaknya tingkat supervisor.*
	7.1.2. As initial report, every employee shall immediately inform to his/her supervisor for any Incident found or experienced in work-place. *Sebagai laporan awal, setiap karyawan harus segera menginformasikan kepada supervisornya apabila menemukan atau mengalami Insiden di tempat kerja*
	7.1.3 Within 24 hours after receiving the information, Supervisor shall officially report it using Incident initial Report form (see Attachment 2 'Incident Report Form') and distribute it to SHE division after got approval from his/her Section Manager. *Dalam waktu 24 jam setelah menerima informasi, maka Supervisor harus secara resmi melaporkannya menggunakan format "INCIDENT INITIAL REPORT" (lihat lampiran-2), dan mendistribusikannya ke Divisi SHE setelah mendapatkan tanda tangan dari Section Manager.*
SHE Technology & Audit (HTA)	7.1.4 Based on the "Incident Initial Report", SHE Division shall send report to local labor office (DISNAKERTRANS) within 48 Normal Working Hours (NWH) from time of accident occurrence if resulted in Lost Time Accident / LTA with temporary report (including Fatality & Permanent Total Disability) using form "FORMULIR LAPORAN DAN ANALISIS STATISTIK KECELAKAAN" (see Attachment 3 'Formulir Laporan dan Analisis Statistik Kecelakaan'). Final report should be sending to local labor office (DISNAKER) based on investigation result. *Berdasarkan "Incident Initial Report" Divisi SHE mengirim laporan ke Dinas Tenaga Kerja (DISNAKER) setempat, dalam waktu 48 Jam Kerja Normal sejak waktu kejadian, untuk kecelakaan yang mengakibatkan hilangnya jam kerja / LTA dengan laporan sementara (termasuk kematian dan cacat permanen), menggunakan formulir "LAPORAN DAN ANALISIS STATISTIK KECELAKAN (Lihat Lampiran-3). Laporan final harus dikirim ke dinas tenaga kerja (DISNAKER) berdasarkan hasil investigasi*

7.2 Investigation

Investigasi

Executor	Description
Related Department	7.2.1 Investigation shall be done by investigation team for all incidents. *Investigasi harus dilakukan oleh tim Investigasi untuk seluruh insiden.*

7.2.2 Investigation shall be conducted for all incidents. It shall be started within 2 x 24 normal work hours after incident happened.

Investigasi harus dilakukan untuk seluruh insiden. Investigasi harus sudah dimulai dalam waktu 2 x 24 jam kerja normal setelah incident terjadi.

Related Department

7.2.3 Investigation shall be conducted by the investigation team and facilitated by SHE Technology and Audit Department, which is set as follows:
Investigasi harus dilakukan oleh team investigasi dan difasilitasi oleh departemen SHE Technology dan Audit, yang diatur sebagai berikut :

INVESTIGATION TEAM	**INCIDENT CLASS (Refer to 4.37)**		
	CLASS 1	**CLASS 2**	**CLASS 3**
Team Leader	RELATED GM/DM (SHE Audit as Secretary)	RELATED DM (SHE Audit as Secretary)	RELATED SM or Above (SHE Audit as Secretary)
Team Member	Direct Supervisor, Witness,SHE and other people as deemed necessary by investigation team such as an employee who understands equipment or processes associated with the incident. For external matter should involve CSR		
Remarks	Even the casualty/injured person is not a member of investigation team, he/she could be interviewed by investigation team. For external matter should involve CSR.		

TIM INVESTIGASI	***Kelas/Tingkatan Insiden (Mengacu pada 4.37)***		
	Kelas 1	***Kelas 2***	***Kelas 3***
Ketua Tim: *- Cedera/Penyakit dan Insiden (Selain Insiden Kebakaran)* *- Insiden Kebakaran*	*GM/DM terkait (SHE Audit sebagai Sekertaris)*	*DM terkait (SHE Audit sebagai Sekertaris)*	*DM/SM terkait (SHE Audit sebagai Sekertaris)*
Anggota Tim	*Atasan langsung, Saksi,SHE dan orang lain yang dianggap diperlukan oleh tim pra-investigasi, seperti karyawan yang memahami perlatan atau proses yang berhubungan dengan kecelakaan/insiden.* For eksternal matter should be involve CSR		
Keterangan	*Walaupun korban/orang yang terluka tidak termasuk sebagai anggota tim pra-investigasi, dia dapat diwawancarai oleh tim investigasi.* Untuk urusan eksternal harus melibatkan CSR.		

Related Department	7.2.4 SHE Technology and Audit Department within 48 Normal Working Hours (NWH) after receiving the "INCIDENT INITIAL REPORT" of all incidents will ask to all team members for investigation. *SHE Technology and Audit dalam waktu 48 jam kerja normal setelah menerima Laporan awal Incident untuk seluruh insiden akan memanggil pihak-pihak terkait untuk melakukan Investigasi.*
Related Department	7.2.4.1 In conducting investigation, the team should ensure that the following items has been completed: *Dalam melakukan Investigasi, maka tim Investigasi harus memastikan hal-hal sebagai berikut apabila telah selesai:*
	7.2.4.1.1 Assessment of the scene : *Penilaian lokasi kejadian:*
	7.2.4.1.1.1 Inspection of the site, equipment, material that involved in the incident. *Melakukan pemeriksaan di lokasi, peralatan, material yang terkait dengan incident.*
	7.2.4.1.1.2 Site must be secured, especially in the case of fatality and/or permanent total disability which resulted in lost-time. *Mengamankan lokasi kejadian, khususnya untuk kasus kematian dan/atau cacat total yang mengakibatkan kehilangan jam kerja.*
	7.2.4.1.1.3 Taking photographs, sketches, drawing of the incident scene. *Mengambil photo, sketsa, gambar dari incident.*
	7.2.4.2 Interview *Wawancara*
	7.2.4.2.1 To interview of casualty/injured people, witness(es) and or outside experts if applicable, i.e. suppliers, equipment designer, etc. *Mewawancarai korban/orang yang terluka, saksi mata dan atau ahli dari luar kalau diperlukan seperti : pemasok dan pendesain peralatan, dll.*
	7.2.4.2.2 Using Incident Investigation chart (See Attachment-7a) for identifying the following: type of contact or near contact with energy/substance, basic/underlying causes (BCs) and Control Action Needs (CAN); or Using FTA method (See Attachment-7b). *Menggunakan SCAT chart (lihat lampiran No. 7a) untuk mengidentifikasi hal-hal berikut: Penyebab langsung, penyebab dasar dan tindakan-tindakan pengendalian yang dibutuhkan; atau menggunakan metoda FTA (lihat lampiran No. 7b).*
	7.2.4.2.3 Investigation team may use Investigation Question List (see Attachment No. 10) to guide the interview process. *Tim Investigasi boleh menggunakan Daftar Pertanyaan Investigasi (Lampiran nomor 10) untuk memandu proses Investigasi.*

	7.2.4.3 To Make Recommendation for Corrective/Preventive Actions *Membuat rekomendasi untuk tindakan perbaikan*
	7.2.4.3.1 The corrective/preventive actions should focus on all basic/underlying causes (BCs) identified *Tindakan perbaikan/pencegahan harus fokus dengan penyebab dasar yang sudah diidentifikasi.*
Related Department	7.2.4.3.2 The corrective/preventive actions should specify: what, how, who and when the corrective action will be completed. *Tindakan perbaikan/pencegahan harus menjelaskan apa, bagaimana, oleh siapa dan kapan tindakan perbaikan dilaksanakan.*
	Note: *Catatan:* In case of any Disease related work reported, investigation must involve company doctor, and/or by physician or other licensed health professional. Investigation will be conducted separately and conducted by company doctor team *Dalam hal adanya laporan penyakit akibat kerja, Investigasi harus melibatkan Dokter perusahaan, dan/atau Dokter ahli atau tenaga ahli kesehatan yang berlisensi lainnya.* *Investigasi dilakukan terpisah dan dilakukan oleh tim doktor perusahaan*

7.3 Investigation Report

Laporan investigasi

Executor	Description
SHE Technology and Audit	7.3.1 Report is written in English and Indonesian. *Laporan ditulis dalam bahasa Inggris dan bahasa Indonesia.*
	7.3.2 Write the report of preliminary result on the INCIDENT PRELIMINARY REPORT FORM (Attachment-4). It shall be finished within maximum 3 normal workdays after incident pre-investigation meeting. *Menuliskan laporan hasil Pra-Investigasi pada format "INCIDENT PRELIMINARY REPORT FORM" (Lampiran-4). Laporan harus diselesaikan dalam waktu maksimum 3 hari kerja setelah rapat investigasi incident.*
	7.3.2.1 Ensure that all requirement of this procedure are captured in the report. *Pastikan bahwa semua persyaratan dari prosedur ini telah dicakup dalam laporan*
	7.3.2.2 Ensure that the report is reviewed and approved by the investigation team and related GM & Sr. GM prior to its distribution to relevant party. *Pastikan bahwa laporan telah dipelajari dan ditandatangani oleh tim Investigasi dan GM & senior GM terkait sebelum didistribusikan kepada pihak yang relevan.*
	7.3.2.3 The progress of corrective/preventive actions will be monitored through "CORRECTIVE/PREVENTIVE ACTIONS TRACKING TABLE" in the

	INCIDENT INVESTIGATION REPORT form. *Kemajuan tindakan perbaikan/pencegahan akan dipantau melalui "CORRECTIVE/PREVENTIVE ACTIONS TRACKING TABLE" dalam format INCIDENT PRELIMINARY REPORT.*
SHE Technology and Audit	7.3.2.4 INCIDENT PRELIMINARY REPORT will be kept as an active report until all the corrective/preventive actions have been done. After all corrective/preventive action done, the INCIDENT PRELIMINARY REPORT will be stamped as "CLOSED" and to keep and maintain it for 5 years. *INCIDENT INVESTIGATION REPORT akan disimpan sebagai laporan yang masih aktif hingga semua tindakan perbaikan/pencegahan telah selesai dilaksanakan. Setelah semua tindakan perbaikan/pencegahan dilaksanakan, maka dokumen tersebut akan distempel «CLOSED» dan menjaga serta menyimpan dokumen tersebut selama 5 tahun.*
	7.3.2.5 SHE Technology and Audit shall keep and maintain the MASTER LIST OF INCIDENT (Attachment-5) including its STATISTIC such as: Frequency Rate (FR), SEVERITY RATE (SR), and other forms of statistics and to distribute it to all department Manager every 6 month. *SHE Technology and Audit harus membuat dan menjaga "MASTER LIST OF INCIDENT" (lampiran-5) termasuk STATISTIK nya seperti: Frequency Rate (FR), Severity Rate (SR) dan bentuk-bentuk statistik lainnya, dan mendistribusikan ke setiap Department Manager setiap 6 bulan.*
	7.3.3 Write the Final investigation report using template F2820-P0019-03 Standard Format for Incident catagorized as Incident class 1. It shall be finished within maximum 7 days after Incident preliminary report. The content shall contain following point: *Menuliskan final investigation report menggunakan format standard template F2820-P0019 untuk laporan Investigasi seluruh Incident kelas 1. Laporan harus selesai dalam waktu maksimum 7 hari setelah Incident preliminary report .* *Isi laporan harus berisi sebagai berikut :*
	7.3.3.1 Cover contain Company logo, number of investigation report, title of case, date of incident and date of completion incident investigation report. *Halaman depan memuat logo Perusahaan, nomor laporan Investigasi, judul kasus, tanggal insiden dan tanggal pelengkapan laporan Investigasi insiden.*
	7.3.3.1.1 Investigation Team, include name of members, position, Department/Section and signature. *Tim Investigasi, termasuk nama anggota, posisi, Departemen/Section dan tanda tangan.*
	7.3.3.1.2 Table of Contents with page number for each section. *Daftar Isi dengan nomor halaman untuk setiap bagian.*
	7.3.3.1.3 List of Figures with page number for each figure. *Daftar Gambar dengan nomor halaman untuk setiap gambar*
	7.3.3.1.4 Glossary. *Istilah.*
	7.3.3.1.5 Final report. It contains general identity of casualty, brief description of incident, and root cause.

		Ringkasan eksekutif. Memuat identitas umum dari korban, deskripsi singkat insiden, dan akar masalah.
	7.3.3.1.6	Section 1- Introduction. It contains background of Investigation *Bagian 1- Pendahuluan. Memuat latar belakang Investigasi*
	7.3.3.1.7	Section 2- Overview Safety Program *Bagian 2- Tinjauan Program Keselamatan*
SHE Technology and Audit	7.3.3.1.8	Section 3- Synopsis of Event *Bagian 3- Ringkasan Kejadian*
	7.3.3.1.8.1	Synopsis event of incident shall be written in detail. *Ringkasan kejadian insiden harus tertulis secara rinci.*
	7.3.3.1.8.2	Synopsis event contain: *Ringkasan kejadian memuat:*
	7.3.3.1.8.2.1	Time (use military time), Date, Place *Waktu (gunakan waktu militer),Tanggal,Tempat*
	7.3.3.1.8.2.2	Persons involved in the Incident *Orang yang terlibat dalam Insiden*
	7.3.3.1.8.2.3	Vehicles / equipment involved in the Incident *Kendaraan / peralatan terlbat dalam Insiden*
	7.3.3.1.8.2.4	Events leading to the Incident *Kejadian yang mengarah ke Insiden*
	7.3.3.1.8.2.5	The Incident *Insiden*
	7.3.3.1.8.2.6	Description of damage *Deskripsi kerusakan*
	7.3.3.1.8.2.7	Nature of injuries *Sifat cedera*
	7.3.3.1.8.2.8	Post Incident response *Respon pasca insiden*
	7.3.3.1.9	Section 4- Root Causes and Corrective and Preventive Actions. *Bagian 4- Akar Masalah dan Tindakan Perbaikan dan Pencegahan*
	7.3.3.1.10	Section 5- Conclusions *Bagian 5- Kesimpulan*
	7.3.3.1.11	Section 6- Attachments *Bagian 6- Lampiran*

7.4. Corrective & Preventive Action Report (CAR & PAR) Monitoring

Pemantauan Laporan tindakan perbaikan & Laporan tindakan pencegahan

Executor	Description
Related Department	7.4.1 Manager of CAR & PAR PIC get notification from email about CAR & PAR and due date. *Manajer yang bertanggung jawab terhadap CAR & PAR mendapatkan pemberitahuan dari email mengenai CAR & PAR dan batas tanggal terakhir.* 7.4.2 SHE Technology and Audit follow up progress of CAR & PAR to related Section / Department every Wednesday until CAR & PAR status become "CLOSED". *SHE Technology and Audit menindaklanjuti perkembangan CAR & PAR ke Seksi / Departemen terkait setiap hari Rabu hingga status CAR & PAR menjadi «CLOSED».* 7.4.3 PIC Section / Department send evident for closing CAR & PAR to SHE Technology and Audit. *Seksi / Departemen yang bertanggung jawab mengirimkan bukti untuk menutup CAR & PAR ke SHE Technology and Audit.* 7.4.4 SHE Technology and Audit send update log of CAR & PAR to TQM Department every Thursday. *SHE Technology and Audit mengirim catatan terbaru CAR & PAR ke Departemen TQM setiap hari Kamis.* 7.4.5 TQM Department distribute update log of CAR & PAR to all Managers and BODs and keep it. *Departemen TQM mendistribusikan catatan terbaru CAR & PAR kepada seluruh Manajer dan BOD, serta menyimpannya*

8 DEVIATION

No.	Deviation	Countermeasure(s)
1	In case of incident happened *Jika terjadi insiden.*	AA / WEA can inform to SHE division immediately by using communication tools (e.g. Radio / HT, Hand Phone, etc.) before incident preliminary report is made. But, incident preliminary report still should be sent in 24 normal working hour *AA / WEA dapat menginformasikan ke divisi SHE secepatnya dengan menggunakan alat komunikasi (seperti Radio / HT, telepon genggam, dll) sebelum laporan awal insiden dibuat. Tetapi, laporan awal insiden tetap harus dikirimkan dalam 24 jam kerja normal*
2	In case work related illness Jika terjadi penyakit akibat kerja.	Any report or employee suspected of work related diseases, SHE shall report to medic for further treatment and investigation. All report and investigation under medic responsibility. *Semua laporan dan terduga karyawan yang terkena penyakit akibat kerja, SHE harus melaporkannya ke medic untuk penanganan dan investigasi lanjutan. Semua laporan dan investigasi dibawah tanggung jawab medic.*

9. ATTACHMENTS

Attachment No.	Title	No. of Pages
1.	Relevant OSHA 1904-Recording and Reporting occ. Injuries or illness (List of Accident Catagorized as FAA).	1
2.	F2820-F0057-04 Initial Incident Report	1
3.	F2820-F0058-04 Pre-liminary Report.	2
4.	Master List of Incident.	1
5.	Final Investigation Report	5
6.	Systematic Cause Analysis Technique (SCAT)	4
7.	Contoh Format FTA	1
8.	CAP Material Threshold according to API 754 Tier-1 and Tier-2.	2
9.	F2820-F0139-00 Incident Calculation Cost	1

10. REFERENCES

Document No.	Title	Location
No.1 tahun 1970	Undang-Undang Keselamatan Kerja	SHE
No. 50 tahun 2012	Sistem Managemen Keselamatan dan Kesehatan Kerja	SHE
Kep.84/Bw/1998	Tata Cara Pengisian Formulir Laporan dan Analisis Statistik Kecelakaan	SHE
SHE-DIV-004	Procedure for Liquid Lost of Containment/Vapor Release Response	SHE
OHSAS 18001 : 2007	Managemen K3 dan Standard	SHE,TQM
SCG Safety Frame Work	SCG Safety Frame Work	SHE,TQM
ISO 14001: 2004	Sistem Managemen Lingkungan	TQM
Per-01-Men/1/2007	Pedoman Pemberian Penghargaan Keselamatan dan Kesehatan Kerja	SHE,TQM
API RP 754	Process Safety Performance Indicators for the Refining & Petrochemical Industries	SHE,TQM

11. RELATED FUNCTION(S)

All department and section of CAP, PBI and SMI.

PROC. TITLE : CARRY OUT REQUEST PROCEDURE					
PROC. NO.	**CLASS**	**REV. NO.**	**REV. DATE**	**TOPIC**	**PAGE NO.**
SSD-ADV-0003	A	00	SEPT.11,2007	SCY	1 of 3

APPROVAL SHEET

1. OWNER(S)

Name	Position	Signature	Date
B.Panjaitan	Security Service Manager		

2. REVIEWER

Helmilus Moesa	Production GM	
Yohanes Widharmanto	Engineering GM	
Jong Susilo William	PMT GM	
R.Tjiptoputro	Technical Trng GM	

3. APPROVING AUTHORITY

Norb Radziwon	Manufacturing Dpty Dir.	
DR.H.Yamada	Technical Service Director	
Jerry Farmer	Manufacturing Director	

HISTORICAL OF REVISION

Revision No.	Effective Date	General Description of Revision
0		Original procedure
1		To re-arrange level of approval and improvement of carry-out request form

APPROVED

CONTENT

1. PURPOSE

To provide guidelines for any employee and contractor intended to carry goods out of CA complex.

2. SCOPE

All goods such as materials, machine, spare-parts, tools/equipment, project material excess, samples, grass, office equipment, PCs, industrial waste and personal properties.

3. TERM AND DEFINITION

1). *Normal Working Days* is the days except Saturday, Sunday and any other holidays determined by the company or government.

2). *Cancelled COR* means when the carry out is reschedule to different date. In this case the COR have to be re-issued.

3). *Postponed COR* means when the date of carry-out schedule still the same as requested but out of 16:00 o'clock.

4. ACTIVITIES

1). Requestor to fill-out and submit Carry Out Request (COR) form **(Attachment-1)** in accordance with Carry-Out Request Approval Matrix **(see attachment-2).** The carryout is approved only during normal working day and at two interval schedule :

Morning	09:00	12:00
Afternoon	13:00	16:00

Except for emergency condition, carry-out on outside the defined interval schedule should not be allowed. The department in-charge shall explain the reason for emergency on COR form.

Note :
Carry-in document is required by department in-charged to confirm the carryout material.

2). At the time of carry-out schedule due, the goods will be loaded/packaged and relevant department should send honest and trusted employee(s) for witness(es) to control during loading/packing. The department in-charge is fully responsible upon the truth of quantity or type of the goods that carried-out.

4). In case of emergency and outside normal working hour/day COR form may approved by the Supervisor/Superintendent levels of the relevant department, and to be approved by DM inch. and GM inch. at the following normal working day.

5). For bulk materials and other goods that require weighing, shall perform weighing before and after loading the goods, and attached the weighing record on the COR form. The witness(es) should control and watching at the time of weighing.

6). For carry-out using vehicle, witness shall escort the vehicle until main-gate (gate-1). All carry-out vehicles and packages must stop at Security Check points for visual check by security personal and get approval on COR form from SCY Manager (or his nominee) prior to exiting from Gate-1.

7). For a covered/packaged or environmentally protected goods, the witness from department in-charged shall demonstrate to the satisfaction of the security that such an object is an item of the declared type, quantity, and if applicable, variant or version in the approved COR form.

8). Once COR request already approved and or loading, but at the time of carry-out schedule is cancelled due to some reasons, Requestor should re-confirm the goods, re-issue the new COR and follow normal COR procedure. However for postponed COR schedule, not need to re-issue the new COR. (what is the meaning of "cancelled" and "postponed" COR, see Term and Definition in page 2 of 3.

9). Prior to entering and exit to/from CA complex including red area the transporter should compliance with CA entry/exit permits procedure.

10). For type of carry-out " Temporary", security should monitor returning of the goods at defined schedule.

11). Original of COR form is kept by SSD and the copy is kept by requestor and department in-charge.

5. ATTACHMENTS

Attachment No.	Title	No. of pages
1	Carry-Out Request Form	1
2	Carry-Out Request Approval Matrix	1

6. REFERENCE

Document No.	Title	Location
	Procedure for entry and exit permits	

Chandra Asri Petrochemical

SAFETY BODY HARNESS

Inspection Date :
serial No. :
Manufacturing Date :
User Dept :

No	INSPECTION ITEM	STANDARDS	INSPECTION METHOD		INSPECTION RESULT	REASON FOR NOT COMPLY
			VISUAL	FUNCTION		
	Hadware					
1	Snap hooks	Tidak retak, mudah dioperasikan, tidak karat	•	•		
2	D-Ring	Tidak retak, korosi	•			
3	Carabiner	Tidak retak, korosi, mudah di operasikan	•	•		
4	Webbing	Tidak ada yang robek, terbakar, lobang. Bersih dari oli/cairan kimia apapun	•			
5	Stitcing (JAHITAN)	jahitan tidak ada yang terlepas	•			
6	Lanyard	untuk absober masih terbungkus dengan plastik dan tidak robek, tidak ada robek/lubang/terbakar	•			
7	Label	masih terpasang	•			
8	Rope (Tali) opsional	lilitan tidak rusak, robek/terbakar. Bersih dari oli/cairan kimia apapun	•			

INSPECTION STATUS

☐ **PASSED**

☐ **HOLD**

☐ **REJECTED**

SPECIAL NOTE FROM INSPECTOR :

INSPECTION BY

Name and Signature

APPROVED BY

Name and Signature

Confined Space Entry (CSE) Ventilation Plan Form

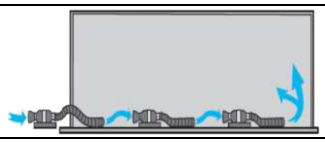
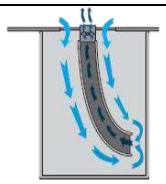
Chandra Asri

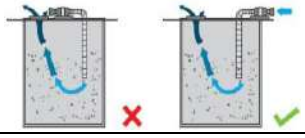
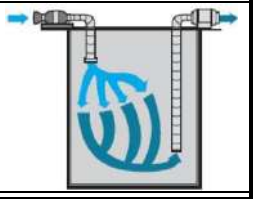
1. Disiapkan oleh WEA

Pemohon	: _____
Tanggal	: _____
Tag Peralatan	: _____
Lokasi	: _____
Deskripsi Pekerjaan	: _____
	: _____

Co-signed by SHE	Approved by AA (Shift Supervisor)
Name - ID No.	*Name - ID No.*

2. Panduan Ventilasi di Ruang Terbatas

Ruang Terbatas Panjang	*Ruang Terbatas Dalam*	*Confined Space dengan Satu Manhole*
Gunakan blower di satu lubang dan exhaust di lubang lain 	*Gunakan blower dari bawah dan exhaust dari atas* 	*Gunakan blower dengan ducting panjang untuk mencapai bawah* 

Mencegah Udara Keluar Tersirkulasi kembali	*Menghilangkan kontaminasi yang lebih ringan daripada udara*	*Mengurangi kontaminasi yang lebih berat daripada udara*
Posisikan udara masuk jauh dari lubang lain ruang terbatas 	*Gunakan blower dan alirkan ke bawah dan exhaust di lubang lain ruang terbatas* 	*Gunakan exhaust dan alirkan ke bawah untuk menangkap kontaminan di bawah dan blower di lubang lain ruang terbatas* 

3. Rencana Ventilasi

3.1. Kontaminan yang terbentuk selama bekerja di CSE

Sumber Kontaminan (Beri tanda ✓)	ACH[2] (a)	Confined Space Volum (m^3) (b)	Laju ventilasi (m^3/hr) (a x b)
☐ Hot Work[1]	10		
☐ Chemical/ Painting	10		
☐ Tidak diketahui	6		

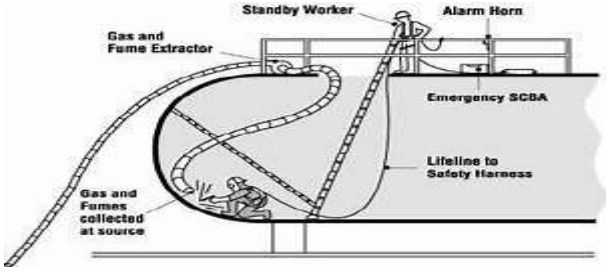
3.2. Peralatan Ventilasi

Peralatan	Qty	Laju alir per unit (m^3/ hr)[4]	Laju alir total (m^3/ hr)
Blower[3]			
Exhaust			
Total			

3.3. Massa jenis kontaminan (Beri tanda ✓)

Kontaminan lebih ringan dari udara *(mis: fume welding)*	
Kontaminan lebih berat dari udara *(mis: painting, chemical cleaning)*	

Catatan:
1. Untuk Hot Work, pastikan gunakan exhaust dan pasang ducting exhaust sedekat mungkin dengan pekerja



2. ACH adalah Air Change per Hour, siklus pergantian udara per jam. ACH berdasarkan pada Best Practice Petronas Global dan SCG.
3. Pastikan posisi blower jauh dari sumber kontaminan lain (mis: asap pembuangan mesin)
4. Konversi satuan: 1 CFM = 1.7 m3/hr

3.4. Gambarkan peralatan ruang terbatas dengan memperhatikan: jumlah dan posisi manhole, inlet, outlet, dan lubang lainnya, layout ducting (belalai), dan lokasi blower/ exhaust.