### INTERNATIONAL JOURNAL ON ADVANCED TECHNOLOGY, ENGINEERING, AND INFORMATION SYSTEM (IJATEIS)

### EVALUATION OF THE APPLICATION OF SMK3 IN PCI GIRDER ERECTION WORK USING A CRAWLER CRANE

(Case Study: Construction of Probolinggo - Banyuwangi Toll Road Package 1 Sta - 3+881 - Sta 09+00 At Bridge Sta -3+256 Span 40.8 Meters)

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#### Abstract

The Occupational Safety and Health Management System (SMK3) is a comprehensive framework that is used to regulate various activities and manage occupational safety and health (K3) in a systematic manner. In the context of the Probolinggo Banyuwangi Toll Road Development Project Package 1, the implementation of SMK3 was assessed to determine the level of implementation, identify factors that influenced the implementation, and propose corrective actions. The assessment was conducted based on 166 criteria that were outlined in PP No. 50 of 2012, which is a regulation that governs occupational safety and health in Indonesia. Out of these 166 criteria, it was found that 149 criteria were fulfilled, accounting for a compliance rate of 89.76%. However, there were 17 criteria that were not met, resulting in a non-compliance rate of 10.24%. These non-compliant criteria were categorized as minor issues. Overall, the implementation level of SMK3 in the Probolinggo Banyuwangi Toll Road Development Project Package 1 was deemed satisfactory, as the majority of the criteria were fulfilled. The project also demonstrated adherence to relevant laws and regulations, further confirming its commitment to occupational safety and health. Based on the assessment findings, corrective actions can be proposed to address the non-compliant criteria and improve the implementation of SMK3. These actions may include providing additional training and resources, enhancing communication and coordination among stakeholders, and implementing stricter monitoring and evaluation mechanisms.

Keywords: Analysis, Implementation of SMK3, Health Management System

### 1. INTRODUCTION

The construction of the Probolinggo-Banyuwangi Toll Road phase I, spanning 49.68 km, has commenced under the Ministry of Public Works and Public Housing (PUPR). PUPR Minister Basuki Hadimuljono laid the first stone (Groundbreaking) on Monday (6/2/2023) in Pendil Village, Suko District, Probolinggo Regency, East Java Province. Minister Basuki highlighted that this toll road, with a total length of 175.40 km, is the final section of the Trans Java Toll Road, connecting Banten, West Java Province to East Probolinggo, East Java Province. The toll road is expected to enhance the transportation of people, goods, and services from Banten to Banyuwangi, thereby boosting the local economy.

Minister Basuki announced that the Probolinggo-Besuki section, with an investment value of Rp10.7 trillion, is now ready to be restarted. This section is the final part of the Trans Java Toll Road, connecting the western and eastern ends of Java Island. According to Danang Parikesit, the Head of the Toll Road Regulatory Agency, the

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construction of this toll road section is expected to be completed by 2024 (PARAMPARA, 2018). Danang also emphasized the importance of this section, as it not only completes the Trans Java Toll Road but also contributes to the development of tourism activities in East Java and Bali.

Construction work is a pretty unpredictable field with its fair share of risks. The more complex a project is, the higher the chances of encountering project risks. Project risks are basically uncertainties that come with the possibility of certain events happening, which can have negative impacts on both the physical and financial aspects of the project. These consequences are definitely not what the project wants, as they can hinder the progress and achievement of project goals, such as cost, time, and quality. These risks have the potential to affect the productivity, performance, quality, and cost of the project.

Unexpected risks can arise at any time. Even with thorough planning, there is always a level of uncertainty whether things will go exactly as planned. In the construction industry, it's impossible to completely eliminate risks, but they can be minimized or transferred to other parties (Ervianto, 2023). When risks do occur, they can disrupt the overall project performance, leading to potential losses in terms of cost and time. Construction industry players are now realizing the significance of addressing risk issues in their projects. Failing to accurately predict and handle risks can have negative consequences, both directly and indirectly, on construction projects (Labombang, 2011).

The Minister of Public Works Regulation No. 05/PRT/M/2014 has put in place rules for assessing the level of risk in construction projects, identifying hazards, evaluating risks, prioritizing them, implementing measures to control risks, and assigning responsible individuals. This is to ensure that unwanted incidents are prevented. In order to assess the effectiveness of the Occupational Health and Safety Management System (SMK3) in the installation of a 40.8-meter span PCI Girder using a Crawler Crane for the Probolinggo Banyuwangi Toll Road construction, it is necessary to evaluate its application. By implementing SMK3, workers are expected to carry out their tasks in a safe and healthy manner, while also increasing their awareness of occupational safety and health (K3) (Pangkey et al., 2012).

The main objective of this study is to assess the implementation of SMK3 (Occupational Health and Safety Management System) in the installation of PCI Girder Erection using Crawler Crane, specifically in relation to the regulations outlined in PP number 50 of 2012. The study aims to determine the extent to which SMK3 is being applied in this particular construction process. In addition to evaluating the implementation of SMK3, the research also aims to identify any factors that are not being met in the application of SMK3 based on the regulations stated in PP number 50 of 2012. This could include any gaps or deficiencies in the current practices that do not align with the requirements of the regulation.

Furthermore, the study seeks to analyze the non-compliance of work elements as per PP number 50 of 2012. This involves examining specific aspects of the construction process, such as safety procedures, risk assessments, training programs, and emergency response plans, to identify any areas where non-compliance is occurring. Based on the findings from the evaluation and analysis, the study will propose corrective measures to address the non-compliance of work elements according to PP number 50 of 2012. These corrective measures may include recommendations for improving safety protocols,

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enhancing training programs, implementing additional safety measures, or revising existing procedures to ensure compliance with the regulations.

#### 2. RESEARCH METHODS

This research method provides a framework for approaching research activities with a mindset that aims to address the problems at hand. The focus of this research is on project workers involved in the implementation of PCI Girder Erection using Crawler Crane for the construction of Probolinggo - Banyuwangi Toll Road Section 1. The research takes place at the construction project site of the Probolinggo Banyuwangi Toll Road Package 1, specifically at STA -3 + 881 - STA 09 + 900 bridge STA - 3 + 256, which spans 40.8 meters. The research incorporates survey research, interviews, and literature studies to gather information from both the field and existing literature, enhancing the data collection process.

This study was carried out using descriptive qualitative research methods. It utilized two types of data, namely primary data and secondary data. The primary data was collected through field surveys using techniques such as direct observation, interviews, and internal audits based on the assessment criteria for the K3 system implementation in the construction project of Package 1 STA -3 + 881 - STA 09 + 600 bridge STA - 3 + 256 on the Probolinggo Banyuwangi Toll road, which was undertaken by PT Adi Karya (Persero) as the service provider company. On the other hand, the secondary data consisted of the company's K3 structure and supporting documents for the SMK3 application, which were reviewed to evaluate the implementation and improvement of the system.

The individuals included in this study are those directly involved in construction projects or research sites. The research methodology employed is purposive sampling, which involves selecting participants based on specific criteria related to their abilities and knowledge, ensuring they can provide relevant insights on the research topic. The assessment conducted adheres to the guidelines outlined in PP No.50 of 2012, which focuses on the implementation of SMK3. To gather information from the respondents, a checklist questionnaire based on the audit criteria specified in PP No.50 of 2012 is utilized, following a predetermined accuracy measurement pattern. The research is facilitated by various tools such as cameras (for photos and videos), stationery, sound recording devices, and other necessary equipment for data collection in the field.

#### 3. RESULTS AND DISCUSSION

### 3.1. Analysis result

The audit was conducted using a comprehensive checklist, which can be found in document L-2. This checklist serves as a guide and includes a series of questions and assessments that are designed to evaluate the fulfillment requirements of the Occupational Safety and Health Management System (SMK3) on the Probolinggo Banyuwangi Toll Road Construction Project Package 1 sta-3+881 sta 09+000 (Afan et al., 2022).

To determine the percentage of achievement for the SMK3, a specific calculation formula was utilized (Sidik & Hariyono, 2015). This formula takes into account various



factors and indicators to provide an accurate assessment of the level of compliance with the SMK3 requirements.

The results and analysis of the audit are presented in a clear and organized manner through tables and graphs. These visual representations offer a detailed breakdown of the fulfillment of each of the 12 Audit Criteria Elements, as well as a comprehensive overview of the 166 Criteria Sub Elements.

By utilizing these tables and graphs, stakeholders and decision-makers can easily identify areas of strength and areas that require improvement within the Occupational Safety and Health Management System. This allows for targeted actions and interventions to be implemented to enhance the overall safety and health performance of the Probolinggo Banyuwangi Toll Road Construction Project Package 1 sta-3+881 sta 09+000.

Table 1. Assessment of Implementation of SMK3 Audit Criteria Elements

No		Kriteria	Terpenuhi / Sesuai		Tidak terpenuhi / Tidak sesui			
	Elemen	(Sub Elemen)	Jumlah	Persentase (%)	Jumlah Minor Major		Persentase (%)	
1.	Pembangunan dan Pemeliharaan Komitmen	26	25	96,15%	1	-	3,8	
2.	Pembuatan dan Pendokumentasian	14	12	85,71%	2	-	14,29	
3.	Pengendalian Perancangan dan	8	8	100%	-	70	0	
4.	Pengendalian Dokumen	7	5	71,43%	2	-	28,57	
5.	Pembelian dan Pengendalian Produk	9	9	100%	-	-	0	
6.	Keamanan Bekerja Berdasarkan	41	40	97,56%	1	-	2,44	
7.	Standar Pemantauan	17	14	82,35%	3	-	17,65	
8.	Pelaporan dan Perbaikan Kekurangan	9	8	88,89%	1	-	11,11	
9.	Pengelolaan Material dan	12	9	75,00%	3	-	25,00	
10.	Pengumpulan dan Penggunaan Data	6	5	83,33%	1	-	16,67	
11.	Pemeriksaan SMK3	3	3	100%	-	-	0	
12.	Pengembangan Keterampilan dan	14	11	78,57%	3	-	21,43	
	Sub Total	166	149	89,76	17	-	10,24	

The subsequent is a depiction mapping table derived from the outcomes of analysis, evaluation, and audit discoveries on 12 criteria elements encompassing 166 criteria subelements (advanced level).

Table 2. Mapping of Criteria Description of SMK3 Audit Results

		Criteria Criteria							
NIO	Floments		Not Fulfilled						
No.	Elements	Fulfilled	Mn	Mj					
1.	Development and Commitment maintenance	1,1,1. 1,1,2. 1,1,3. 1,1,4. 1,1,5. 1,2,1. 1,2,2. 1,2,3. 1,2,4. 1,2,5. 1,2,6. 1,2,7. 1,3,1. 1,3,2. 1,3,3. 1,4.1, 1,4.3, 1,4,4. 1,4,5. 1,4,6, 1,4,7, 1,4,8. 1,4,9,1,4,10. 1,4,11.	1,4,2.	-					

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	T = .	T		T
2.	Creation and	2,1,1. 2,1,2. 2,1,3. 1,1,4.	2,2,2.	-
	documentation of a	2,1,5. 2,1,6. 2,2,1. 2,3,1.	2,2,3.	
	hazard and health	2,3,2. 2,3,3. 2,3,4. 2,4,1.		
3.	Control of contract	3,1,1. 3,1,2. 3,1,3. 3,1,4.		-
	design and review	3,2,1. 3,2,2.3,2,3, 3,2,4.		
4.	Document Control	4.1.1, 4.1.2, 4.1.3,4.2.2,	4,1,4.	-
		4.2.3,	4,2,1,	
5.	Dynalogo	5,1,1. 5,1,2. 5,1,3. 5,1,4.		
٥.	Purchase			-
		5,1,5. 5,2,1. 5,3,1.5,4,1.		
	TT 1 C C	5,4,2.	6.5.0	
6.	Work Safety	6,1,1. 6,1,2. 6,1,3. 6,1,4.	6,5,8.	-
	Based on SMK3	6,1,5. 6,1,6. 6,1,7. 6,1,8.		
		6,2,1. 6,2,2, 6,2,3. 6,2,4.		
		6,2,5. 6,3,1. 6,3,2. 6,4,1.		
		6,4,2. 6,4,3. 6,4,4. 6,5,1.		
		6,5,2.6,5,3. 6,5,4. 6,5,5.		
		6,5,6. 6,5,7. 6,5,9. 6,5,10.		
		6,6,1. 6,6,2. 6,7,1. 6,7,2.		
		6,7,3. 6,7,4. 6,7,5.		
		6,7,6. 6,7,7.		
7.	Monitoring Standard	7,1,1. 7,1,2. 7,1,3. 7,1,5.	7,1,4.	-
		7,1,6. 7,1,7. 7,2,1. 7,3,1.	7,2,2.	
		7,3,2. 7,4,1. 7,4,2. 7,4,3.	7,2,3.	
		7,4,4. 7,4,5.		
8.	Reporting and	8,1,1. 8,2,1. 8,3,2. 8,3,3.	8,3,1.	_
0.	Remediation	8,3,4. 8,3,5. 8,3,6. 8,4,1	0,5,1.	
9.	Matrial Management	9,1,1. 9,1,2. 9,1,3. 9.1.4,	9,2,2.	
'.	and	9,2,1. 9,2,3. 9,3,3. 9,3,4.	9,3,1.	-
	The move	9,3,5	9,3,2.	
10.		10,1,1.10,1,2. 10,1,3.	10,2,2.	_
10.	Collection and	10,1,1.10,1,2. 10,1,3.	10,2,2.	-
11.	Service User SMK3 Audit	11,1,1. 11,1,2. 11,1,3.		
		12,1,1. 12,1,2. 12,1,3.	12 1 7	-
12.	Development Skills and	12,1,1. 12,1,2. 12,1,3. 12,1,4. 12,1,5. 12,1,6.	12,1,7.	-
		12,1,4. 12,1,3. 12,1,6. 12,2,1. 12,2,2. 12,3,1.	12,3,2.	
	Ability		12,3,3.	
		12,4,1. 12,5,1.		
166	Criteria	149	17	-

Table 2 presents the results, indicating that there are a total of 149 implementation criteria, which consist of 166 Audit Criteria Sub Elements. Among these criteria, 17 are found to have inappropriate or unfulfilled implementation, falling under the category of Minor Category.

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#### 3.2. Discussion

Based on the results of the analysis and assessment of the audit carried out, it is known that the number of fulfillment of the application of 12 Criteria Elements consisting of 166 Audit Criteria Sub-Elements is 149 Criteria fulfilled / appropriate and 17 Criteria are not fulfilled / not appropriate (Minor Category), these results are then used to determine the percentage value of fulfillment of the level of achievement based on the provisions listed in PP No. 50 of 2012 concerning the Implementation of the Occupational (ILO, 2013)Safety and Health Management System (SMK3) using the following calculation formula:

### a. Suitability Level

Implementation Achievement Level =  $(149/166) \times 100\% = 89.759\%$ 

### b. Level of non-conformity (Minor and Major)

Non-conformance rate =  $(17/166) \times 100\% = 10.24\%$ 

The results of the calculation of the application assessment above can be described as follows:

a. audit criteria : Advanced level (166 criteria)

b. total met : 149 criteria
c. total not met/compliant : 17 criteria
- minor nonconformities : 17 criteria
- major non-conformity : - criteria
d. Achievement level : 89,76%
e. Level of non-conformity : 10,24%
f. Level of applicability : Satisfactory

The level of achievement of implementation, as outlined in PP No.50 of 2012, is measured based on the provisions of laws and regulations. This includes the assessment of the level of implementation, which falls within the range of 85-100% and is considered satisfactory. These provisions can be found in Table 1.

In the case of the Probolinggo Banyuwangi Toll Road Construction Project Package 1 sta-3+881 sta 09+000, the implementation of the Occupational Safety and Health Management System (SMK3) is in compliance with the applicable laws and regulations. This is supported by the results of the audit, which indicate a percentage value of 89.76% for the appropriate application of the system. Additionally, there were findings of discrepancies, amounting to 10.24% of the total, which fall under the Minor Category (Hakim, 2016).

In relation to the evaluation outcomes of the application assessment and the findings derived from the SMK3 Audit conducted on the Probolinggo Banyuwangi Toll Road Construction Project Package 1 sta-3+881 sta 09+000, the company can proceed with additional responses and enhancement measures to effectively execute SMK3 in order to comply with legal regulations, rectify any errors, prevent work-related accidents, and ensure the safety of workers involved in the construction projects. These actions can be elaborated in the table provided, outlining the specifics in a comprehensive manner.

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Figure 1. The detail of construction projects

No	Elemen dan Su Elemen	b Pemenu Dokum teerki	ean pemenau	han	Penceg	ndakan/ l pahan	Respon Perbaikan	4.1.4	Dokumen usaang segera disingkirkan dari	Perusahaan harus memastikn bahwa	Tidak ada tanda khusus yang membedakan	•Tercampum ya dokumen lama dengan dokumen	Memberi penamaan dan tanda khusus	Menempatkan dokumen yang terpakai dengan aman
1	Pembangunan dan Pemeliharaan	teers	it penerap						pennggunaanny a sedangkan	dokumn K3 yg sednng beredar adalah	antara dokumen	yang baru •Menemukan	pada dokumen	dan nyaman serta
1.4	Komitmen: Keterlibatan dan	_	_	_	-	-			dokumen usang yg di simpn untuk keperluan	beredar adalah dokumen terbaru/revsi	usang dan dokumen terbaru/revisi	kesulitan pada saat dokumen	untuk mempermu dah	membuang dokumen yang tak terpakai
	Konsultasi dengan Tenaga Kerj	ac a							tertntu di beri tnda kusus	terakhir. Bila dismpan maka	teroard revisi	tersebut diperlukan		(usang)
.4.2	Terdapat perosedur memudahkan konsu	Itasi   tersebut d		kecelakaan kerja akibat	Membuat mengeval	uasi t	Mengimpleme ntasikan			diberi tanda misal kan		pada waktu tertentu		
	menngenai perubah yang mmpunyai implementasi terhad	pedoman	atau sebagai	tidak adany prosedur Ki ian pada tiap"		iap g	format prosedur k3 vanz sesuai	4.2	Perubahan dan	"obsolute"				
	K3	tahapan penyamp	Implemen		item peke	riaan.	dan benar (seperti SOP	4.2.1	Modifikasi Dokumen Terdapat sistem	Terdapat	Implementasi	Kurangnya	Membuat	Menerapkan
		masalah/i K3 akibu	supe	kerja, alat d bahan	an dan bahan menjadi s	tja, asat (	penggunaan Alat, APD dan	4.2.1	untuk membuat, menyetujui	perosedur pengendalian	5R dan komitmen	kesadaran untuk	Membuat Berita Acara	Menerapkan kebijakn k3 yaitu 5R dan
		perubhan tempat kr	di		dan benar		prosedur tanggap		perubahan terhadap	dokumen yang	tertib APD pada kawasan	menjaga komitmen 5R	komitmen bersama	APD proyek dengan hukun
		Probahan di makyo	yg			1	bahaya dan P3K		dokumen K3	mencakup tahapan	proyek, hanya di lakukan	dan kurangnya	terkait 5R dan K3	yang sama tanna
		bisa tmpa kerja, car								prosess pmbuatan dan persetujuan	oleh Staff yang bukan Ahli tanpa	perlengkapan APD khusunya	dengan di TDDi/di setujui	terkecuali
		krja, alat bahan yg								perubahan dokumen	adanya persetujuan	pada para pekerja	okeh para pimpinan	
		dirasa pel mmbahay	akan								bersama oleh para pihak		tertinggi di bidangnya.	
	Pembuatan	dirinya				_		6	Keamanan Bekerja					
	dan Pendokumentas Rencana K3:	ian						6.5	Berdasarkan SMK3					
2.2	Manual SMK3: Terdapat manual kh	usus Dokumen	Tidak ada	nya -Tercemam	va Membuat	- 1	Mengimpleme	6.3	Penninaraan, Pebaikan, dan					
-	yg bekaitan dengan produk, prosess, ata	berupa m	launam launa	hinekwagan	dokumen mengatur	yang tentang o	otasikan tata cara		Perubahn Sarana					
	tempat kerja tertenti	<ol> <li>manual u pengelola</li> </ol>	n teckait lim	pembangun bah (sisa materi	al pengelola	an I	pengelolahan limbah	6.5.8	Apabila diperlukan	Terdapat mekanisme	Terdapat alat elektronik di	Dapat terjadi konsleting	Memberika	Membuat alat
		Bahan Ki Limbah,	(Batu,kay)		limbah pa kontruksi	s.d i	kontruksi sesuai dengan		dilakukan penerapan	penguncian (liht	dalam ruagan yang masih	listrik karena penggunaan	peringatan dengan	otomatis terhadap
		Manual u Ergonom	ntuk logam,min k ,dll)	berdampak	pemelihar	1	dokumen manual khusus		sistem pnguncian	bentuk/sistem penguncian	menyala tanpa awak (AC, PC dan	daya eletronik	rambu	penggunaan peralatan
		manual penangna		pada pemandang	an.	1	yang ada seperti		pengoprasian (lockout	yang digunakan)	(AC, PC dan charger)	yang lama	untuk mematikan	elektronik
		bahan pel dII).	COAK.	, rusaknya lokasi pekeriaan		1	prosedur pembuangan sisa material		system) untuk mencegah agar sarana	terkait dengan perosedur pmeliharaan/p			barang elektronik sebelum	
				pekerjaan			yang tak terpakai dan		produksi tidak di hidupkan	erbaikn atau			meninggalk an ruangan.	
		1				1	terpakai dan pengendaliann ya		sebelum saatnya	perosedur LOTO (Lockout)				
2.3	Manual SMK3 mud				ya Memperu	rudah 3	Menempatkan	7	Standar Pemantauan					
	dapat oleh semua pe dalam perusahaan se kebutuhan	sonil simpan po esuai lokasi yg mudah di	dan APAR	penanganan pengobatan awal pada	akses kep pengguna membuat	dengan	Kotak P3K dan APAR pada tempat	7.1	Pemeriksan Bahaya					
	and the same of	akses old personel	atau subit o	yi korban dan	petunjuk l	ke 3	yang mudah di jangkau dan	7.1.4	Daftar priksa (check list)	Terdapat daftar	Tidak adanya format	•resiko temuan oleh	Menyusun dan	Membuatkan absensi finger
		perusahai untuk	n, akses	kejadian kebakaran	APAR.	1	aman, tanpa menguncinya		tempat kerja telah disusun	checklist yang sesuai	checklist untuk	tim auditor yang	membuat daftar	print dan menyiapkan daftar alat dar
		membukt nya dapat	0.000			f			untuk digunakan pada	pedoman dan keburtuhan untuk personil	mengontrol daftar pekerja dan inventaris	berdampak pada kerugian perusahaan	periksa sesuai dengan	daftar alat dar dokumen penting yang
		dilihat da Iembar	ni						pemeriksaan/ins epeksi.	dan non personil	kerja	perusanaan	dengan kondisi tempat	di perlukan jika ada
		disteribus manual	·						,	,			kerja seperti absensi,	pemeriksaan internal
	Pengendalian Doku	men.			_								daftar alat,	maupun eksternal
1	Persetujuan,		_	_	_								serta dokumen penting	
	Pengeluaran, dan Pengendalian Doku	nen						7.2	Pemantawan/ Pengukurn				penting	
									Lingkungn Krja					
.2.2	Pemantauan/ pengukuran	a. Liat pada	Terbengkalin	Sisa material Rawan kebakaran	memberika	Melakul	kan	10.2.2	Laporan rutin kinrja K3 dibuat dan disebrluaskan di	Laporan rutin K3 misalya:	Laporan kinerja K3	Kesulitan pada saat melakukan evaluasi perbaikan	Membuat laporan rutin K3 untuk	Membuat laporan K3 secara berkal -membuat
	Pemantauan/ pengukuran lingkungan kerja meliputi faktor pisik, kimia, biolgi, ergonmi dan sikologi.	pada Kepmenker 51/MEN/1999 tntang Nlai Ambanng Batas Faktr Fisika (Kebisingn, suhu krja, metran.	ya material sisa pekerjaan (batu,semen,k	dan polusi terhadap	n SOP terkait lubang galian dan alat atau	pengola limbah : material bisa leb manfaat kembali	sisa I untuk ih di			laporan yg berhbungan dengn kinrja K3	tidak di sosialisasikan dan tidak di tindak lanjuti	melakukan evaluasi perbaikan		-membuat laporan K3
	kimia, biolgi, ergonmi dan nikologi	Ambanng Batas Faktr Finika	ayu, plastic dll) dan adanya bekas	dan polusi terhadap lingkugan sekitar dan	galian dan alat atau	manfaat kembali	tkan i dan		krja.	K3 termsuknya didalm	tindak lanjuti	dikarenkan tidak adanya propedur	kan di dalam tempat	- tindak lanji terhadap has lanoran K3
	1 1	(Kebisingn, suhu krja,	galian pondasi yang	rawan kecelakaan orang terperosok terhadap sisa	orang sebagai control	menutup kembali lubang p	galian			termsuknya didalm monnitoring terhadp perogram K3		yang dilakukan	tempat kerja sebagai evaluasi terhadap	-membuat laporan K3 - tindak lanji terhadap has laporan K3 -rapat TinjauanMin emen untuk
		glombang	(batu, semen, k ayu, plastic dll) dan adanya bekas galian pondasi yang belum di tutup kembali	terhadap sisa lubang galian	pengawas					perogram K3		secara rutin d lingkungan kerja		emen untuk mengevaluas tindak lanjut laporan K3
		radasi ultrapiolet) ditempat kerja e. Faktor biolgis		lubang galian yuang belum di tutup				12	Pengembangan Ketrampilan				K3.	iaporan K3
		c. Faktor biolgis mislava alai						12.1	dan Kmampuan				1	
		baku mtu air minm,						12.1.7	Platihan Perogram	Pada	Tidak adanya		Penijauan	Perusahaan
		pengawasn, terhadp kwalitas							Perogram pelatihn diinjau secara teratur untuk menjamir	prosedur pelatihan ada tahapn dimana	prosedur Pelaksanaan	Keterbatasan keterampilan pekerja	pelatihan bagi tenaga kerja secara	memfasilitas pekerja untul mengikuti
2.3		makann kariawan, dll			Melakukan				untuk menjamir agar tetap relevan dan epektif.		program pelatihan yang dilakukan	*Todak	teratur agar tetap relevan	pelatihan/
4.5	Pemantaua/ pengukuran lingkungan kerja di lakukan	Dapat dilkukan oleh PJK3 atau	Terdapat beberapa personil	Rawan kecelakaan kerja dan	audit dan	Memper an petus yang berkom	eas		epektif.	perogram platihan slama 1 tahun dievaluasi untk	perusahaan untuk	adanya peningkatan kinerja karyawan	relevan dan efektif	pendidikan khusu yang berlisensi untuk dapat meningkatka produktivitas
	kerja di lakukan oleh petugas atau pihak yg	PJK3 atau pihak lain/prsonil yng telah	personil tenaga ahli (pengawas dan teknisi	pencemaran lingkungan	tes pada personil khusus sebelumn	berkom; dan bersertif					melakukan evaluasi dikarenakan program kerja yang	karyawan dikarenakan tidak adanya		meningkatka produktivita perusahaan
	berkompeten dan	yng telah mendaptkan izin atau bersertifikasi.	khusus) yang tidak	yang di sebabkan oleh tenaga	di pekerjakan - kebijakan checklist					apakh masih relvan atau prlu	program kerja yang	prosedur sebagai penunjang efektifitas		perusanaan
	berwewenang dri dlm dan/atau luar perusahaan.	berkompeten dan ahli dalam	mempunyai sertifikasi tetapi	ahli yang bersertifikasi namun tidak	sertifikasi					priu pningkatan lebih lanjut. Termsuk perosentasi kberhasilan	yang dilaksanakan tidak terlalu lama	efektifitas dari pekerja		
		pengendaliang lingkungan hidup	kompeten dan sebaliknya	berkompeten						perosentasi kberhasilan pelatiban				
					- materi uji kepada calon pekerja - kebijakan terhadap implementa			12.3	Pelatihan Bagi	pelatihan yang tlah diikuti.				
	Pelaporan				implementa siny a			12.3.2	Pelatihan	Pemberitahua				-Mapping ar
	dan Perbaikan Kekurangan								diberikn kepada tenaga kerja	kepada	prosedur pelatihan bag		n pelatihan	perubahan - melatih
3	Kekurangan Pemriksaan								apabila di tempat kerjanya		tenaga kerja, ketika ada	karyawan pada sarana	penyegaran kepada	sebelum
	dan pengkajiyan Kecelakan								terjdi prubahan sarana	perubahan sarana atau	perubahan sarana dan	produuksi baru yang	tenaga kerja	adanya perubahan
3.1	Tempat kerja/ perusahaan	Pedoman/ SOP terkait	Tidak pernah dilakukan	-Tingkat keparahan	- membuat prosedur	-Melaku pengece	ukan ekan		peroduksi atau peroses.	penggantian alat baru.	kebijakan di dalam	membuat kerugian nad	berupa	-pengawasar pada teknolo
	mempunyai prosedur pemriksaan dan	prosedur pemeriksaan dan	Tidak pernah dilakukan medical check up dan sosialisasi	keparahan pada korban kecelakaan karena tidak	dan pengecekan sebelum	pengece suhu ba (cek me sebelum	idis)	1		-Mapping	perusahaan (assembly	perusahaan	darurat ketika	baru
	pemriksaan dan pengkajiyan kecelakan kerja dan penyakit akibat kerja.	penanganan kecelakaan	kepada pekerja seperti pelatihan P3	mendapat P3 - penyebaran virus	masuk area keria	memasu area ker - serta	alei	1		mapping	point,	J	terjadi gempa keb	
	dan penyakit akibat kerja.	kerja dan penyakit	seperti pelatihan P3	meluas di	penangan			,			smoking area	1	gempa,keb akaran dl	
				lingkungan kerja (virus corona)		pelatiha dalam antisipa kecelaki	si .	12.3.3	20 20 00			- memperburul	k	-melakukan pelatihan
				corona)		kecelak kerja	aan		Pengusaha atau pengurus			keadaan jika terjadi	1	tanggap darurat dan
2	Sisstem Penganngkutan, Payampanan							1	memberikan pelatihan	Pelatihan penyegaran in	Tidak ada i kegiatan	bencana dan kecelakaan	Membuat	P3K
2.2	Peyimpanan dan Pembuangn Terdapt	- Bahn-bahan	-Tidak	Ranko	Membuat	Membu	wat SOR	1	penyegaran kepada semua	penyegaran ini tergntung kebuthan/	pelatihan	kecelakaan - kerugugian pada	Membuat mapping area dan	
	perosedur yng	yg ditangani sesuai dengn	itangani adanya human ero		prosedur sesu pengendali pera		ıran		tenaga kerja	kerja persaratan yg	sebagai penyegaran	perusahaan	prosedur	
	persyaratan pengendalian bahar	peraturan perundangan	penangann terhadap material dan	menyebabkan kecelakaan kerja dan	an bahan yang dapat mudah	-Aplika: penerap SOP dar	an n			ada. Mislnya platihan	pegawai (latihan		jadwal pelatihan	
	menjelaskan persyaratan pengendalian bahan yang dapat rusak atau kadaluarsa.	seperti penyimpanan bahan		rusaknya alat	mudah rusak atau kadaluarsa	pengaw	asan			tanggp darurt 1 thn skali,	tanggap darurat, P3)		tanggap darurat dan	
	and the second second second	peledak, penyimpanan	mempunyai resiko bahaya tinggi dan tenaga khusus	kurang kompeten nya petugas yang		1				platihan P3K, platihan B3 dl			P31	
		men-gas		petugas yang menangani						•				
		gas-gas dengan tabung atau	mengolah alat	1990										
		dengan tabung atau bejana	mengolah alat , Material dan bahan bakar											
	Pangumpula	atau	mengolah alat , Material dan bahan bakar untuk alat berat											
		atau	mengolah alat , Material dan bahan bakar untuk alat											

### EVALUATION OF THE APPLICATION OF SMK 3 IN PCI GIRDER ERECTION...

Djoko Prasetyo, Wateno Oetomo, Sajiyo



After conducting the audit and analysis, it is evident that there are several factors contributing to the non-compliance of the Occupational Safety and Health Management System (SMK3) in the Probolinggo - Banyuwangi Toll Road Construction Project Package 1 Sta. -3+881 - 09+000. These factors include the absence of necessary documents and procedures for field changes, which has implications for K3(Sucita & Broto, 2011). Additionally, there is a lack of documentation and training for workers to prevent work accidents, resulting in inconsistencies in meeting requirements and other references (Ramli, 2010).

Based on these findings, the next course of action should involve implementing response measures and improvements. This includes developing special procedures and formats for field changes to make informed decisions regarding OHS, documenting procedures using a new information system, and providing refresher training for workers. It is crucial for workers to be trained in simulating emergency situations to prevent work accidents and ensure compliance with the Occupational Safety and Health Management System (SMK3) as per the relevant laws and regulations (Prasetyo & Oetomo, 2023).

### 4. CONCLUSION

After conducting an analysis and audit on the construction project of Probolinggo Banyuwangi Toll Road Package 1 sta-3+881 sta 09+000, it has been determined that the implementation of the Occupational Safety and Health Management System (SMK3) is at a satisfactory level. The achievement rate is 89.76%, indicating that the implementation is appropriate. However, there are still 10.24% of findings that fall under the non-conforming category, specifically in the Minor Category.

Several factors have been identified as contributing to the non-fulfillment of implementation. These include the absence of procedural documents and specialized formats for on-site changes that impact Occupational Health and Safety (OHS). It is worth noting that insufficient documentation and training for workers have resulted in inconsistencies in meeting requirements and other references.

To address these challenges, it is recommended to create special procedures and formats that are related to changes affecting OHS. Additionally, documenting procedures through a new information system and implementing refresher training for workers are crucial steps in accident prevention and aligning with SMK3 application as per government regulations. To meet requirements and address inconsistencies, it's recommended to review and update existing SMK3 documents and procedures. To ensure that SMK3 is implemented effectively throughout the organization, it's important to conduct regular internal audits. In addition to assessing the implementation of SMK3 through audits in construction projects, future researchers should also explore worker satisfaction and productivity levels after SMK3 implementation.

### **REFERENCES**

Afan, M. M., Riwibowo, N. R., Wijaya, O. D., & Rohman, M. (2022). Analisis Penerapan Keselamatan Dan Kesehatan Kerja (K3) Terhadap Kinerja Pekerja Proyek Konstruksi. *Device*, 12(2), 144–153.

### INTERNATIONAL JOURNAL ON ADVANCED TECHNOLOGY, ENGINEERING, AND INFORMATION SYSTEM (IJATEIS) VOLUME 3 NO. 1 (2024)

- Ervianto, W. I. (2023). Manajemen Proyek Konstruksi. Penerbit Andi.
- Hakim, A. R. (2016). Implementasi Manajemen Risiko Sistem Kesehatan, Keselamatan Kerja Dan Lingkungan (K3l) Pada Pembangunan Flyover Pegangsaan 2 Kelapa Gading Jakarta Utara. Universitas Mercu Buana.
- Ilo, I. L. (2013). Keselamatan Dan Kesehatan Keja Di Lingkungan Kerja. *Jakarta: International Labour Office*.
- Pangkey, F., Malingkas, G. Y., & Walangitan, D. R. O. (2012). Penerapan Sistem Manajemen Keselamatan Dan Kesehatan Kerja (Smk3) Pada Proyek Konstruksi Di Indonesia (Studi Kasus: Pembangunan Jembatan Dr. Ir. Soekarno-Manado). *Jurnal Ilmiah Media Engineering*, 2(2).
- Parampara, B. (2018). Media Komunikasi Bpsdm Kementrian Pupr Edisi 08. Safety Construction: Komitmen Dan Konsistensi Terapkan Smk3, Hal, 1–35.
- Prasetyo, D., & Oetomo, W. (2023). Minor Factors In Work Elements Of Smk3 Implementation Of Pci Girder Erection Work Based On Pp No 50 Of 2012. *International Journal Science And Technology*, 2(3), 102–107.
- Ramli, S. (2010). Sistem Manajemen Keselamatan Dan Kesehatan Kerja Ohsas 18001. *Jakarta: Dian Rakyat*.
- Sidik, F., & Hariyono, W. (2015). Analisis Penerapan Keselamatan Dan Kesehatan Kerja (K3) Pada Proyek Konstruksi Sahid Jogja Lifestyle City Di Kabupaten Sleman. *Retii*.
- Sucita, I. K., & Broto, A. B. (2011). Identifikasi Dan Penanganan Risiko K3 Pada Proyek Konstruksi Gedung. *Jurnal Poli-Teknologi*, 10(1).

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