

# Effective Health and Safety Management Systems



Wayne Scott - CEO MinEx  
10 September 2017

[wayne@minex.org.nz](mailto:wayne@minex.org.nz)  
mobile: 021 944 336

## Government wants answers after 17 deaths in mining

The NSW government wants to know why so many people are dying on mine sites, with 17 fatalities Australia-wide in 2013-14.

**\$100,000 fine for quarry worker's death  
(Oropi Quarries April 2015)**



**New mine safety  
recommendations after  
worker's death Nov 2015**

**Australia has more mining deaths than Iran!**

Australia has had one mining worker die every 15 days. In Iran, a mine worker dies every 16 days from their 5,600 mines.

**Why is it we keep hurting people?**





## Perception of Risk



- We all have a different perception of risk
- What is yours ??
- What is Risky Behavior ??





# What is a Health and Safety Management System ?

“ ...a **businesslike** approach to safety. It is a **systematic**, explicit and comprehensive process for **managing safety risks**.”

*Wikipedia*

## *Fundamentally*

Competent people

Fit for purpose  
equipment

Safe systems of work



# *Are you implementing a 'safe system of work'?*

- Can you show that you've thought about the risks at your site?
- Can you show that you have planned to make the site safer?
- Who is accountable for implementing the plan - and what do they have to do?
- Is the plan working? Do you consult & involve people on site in making the place safer?



# ***The Health and Safety in Employment ( Mining Operations and Quarrying Operations) Regulations 2016***

## **Regulation 56 – Content of health and safety management system**

Mine operator's health and safety policy ( safe work practices)  
Risk Management process ( Fit for purpose equip, safe work practices)  
Records incl Investigation of accidents ( safe work practices)  
Change Management ( safe work practices, fit for purpose equip)  
Management structure (competent people)  
Monitoring and audit (safe work practices)  
Principal hazard management plans (safe work practices)  
Workplace Inspections (fit for purpose plant)

# ***The Health and Safety in Employment ( Mining Operations and Quarrying Operations) Regulations 2016***

## **Regulation 56 (2):**

**The health and safety management system must be set out at a level of detail commensurate with the nature, size, and complexity of the mining operation and the hazards and any other relevant matters associated with the mining operation.**

## **Regulation 56 (3):**

**The health and safety management system must be prepared in a form and expressed in a way that it is easily understood by any mine worker.**





## HOT WORK PERMIT

The supervisor, in issuing this permit, certifies that all safety factors have been considered and cared for satisfactorily.  
 Return this permit upon completion of the job which it is to cover to the authorizing supervisor. The supervisor will write "complete", date and initial across the face of the permit.

AREA OF HOT WORK:

WORK TO BE DONE:

	YES	NO	NA
1. Read the Hot Work Permit Procedure			
2. Work area and equipment has been made free of flammable, combustible, and hazardous materials			
3. Gas Test taken			
4. Is a fire extinguisher on the job?			
5. Smoke alarms covered?			
6. Lines disconnected and/or blanked?			
7. Is a fire watch provided?			
8. Adjacent equipment and operations considered ok from standpoint of possible effect on the job			
9. Other necessary precautions SPECIFY			

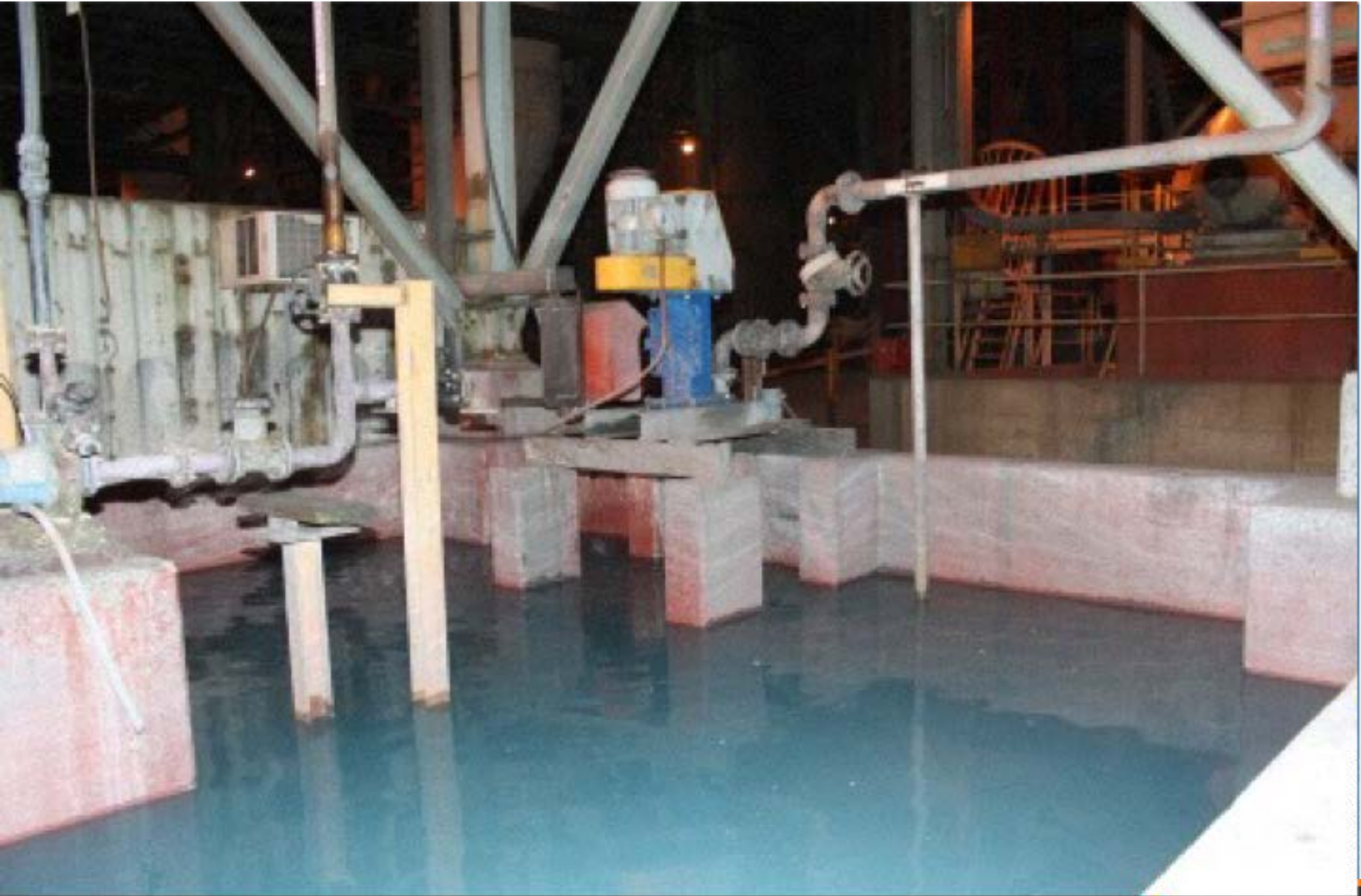
APPROVAL  
 I have personally checked the conditions necessary and as specified I authorize this "Hot" work to begin.

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_  
 HOT WORK PERMIT IS GOOD FOR \_\_\_\_\_ HOURS ONLY  
 THIS PERMIT CAN BE ISSUED FOR ONLY ONE SHIFT. IT BECOMES VOID AT THE END OF WORK SHIFT DAY.



RISK MATRIX - ADAPTED FROM ISO 31000:2018									
		PROBABILITY			CONSEQUENCE				
					People	injury or ailments not requiring medical treatment	Minor injuries or first aid treatment	Serious injury causing hospitalization or multiple medical treatment cases	Life threatening or severe consequences
LIKELIHOOD	Probability	historical				Insignificant	Minor	Moderate	Severe
	>1 in 10	is expected to occur in most circumstances	5	Almost Certain	M	H	H	H	H
	1 in 10 - 100	will probably occur	4	Likely	M	M	H	H	H
	1 in 100 - 1000	Might occur at some time in the future	3	Possible	L	M	M	M	H
	1 in 1000 - 10 000	Could occur but doubtful	2	Unlikely	L	M	M	M	H
	1 in 10 000 - 100 000	May occur but only in exceptional circumstances	1	Rare	L	L	M	M	H









**“it’s just common sense !!!!”**





## ***5 Failure Modes of Site Risk Management***

- Not recognising or appreciating the HAZARD
- Being driven by forms not outcomes
- Relying to much on the '5 by 5' risk matrix
- Not focussing on controls and their effectiveness
- Not recognising the right 'Value'



Jim Joy – [www.jktech.com.au](http://www.jktech.com.au)

# *So... How do we make our risk management and safety management systems more effective ?*

- Have a go yourself, you don't need safety professionals!!!
- Start with a Workplace Risk Assessment
- Implement before you document
- Make sure everything you implement has a purpose
- Reflect the way you do things
- Keep it simple





# *So... How do we make our risk management and safety management systems more effective ?*

- focus on the fatal hazards
- engage your people
- supervise
- physical checks and inspections
- the right equipment, well maintained
- training & competency





# REMEMBER

Competent people

Fit for purpose  
equipment

Safe systems of work



## Examples of Effective HSMS Elements

Rock Trade Industries      Loader pre-Start      17 Sep 2013

Good

Bad

Handbrake

Battery

Air Filter

Oil Level

Coolant

Belts

Fuel

Air Gun

Wipers

Mirrors

Exhaust

Leak

Hard Hat

Hoses

Adapters

Seatbelt

Seat

Windows

Bucket

Tires

Grease

**Physical forklift test to be carried out prior to operation.**

If issues are present with any of the above items, report to supervisor before commencing operation

Maintenance Items:

Machine: \_\_\_\_\_ Return: \_\_\_\_\_ Date: \_\_\_\_\_ Operator: \_\_\_\_\_

**WORKPLACE INSPECTION**

SSE / Representative Inspection

QUARRY SITE: Bell's Quarry

Inspected By: D Hutchinson

Date: 13/2/13

Time: 11:15 AM

Signature: D H

RISK AREAS	RISK	IDENTIFIED RISK
<b>LIGHT HEAVY VEHICLE</b>		
L.V. Pickup / H.V. Pickup	<input checked="" type="checkbox"/>	
<b>ROADWAYS/HAZARDOUS</b>		
Visibility	<input checked="" type="checkbox"/>	
Floor Condition	<input checked="" type="checkbox"/>	
Intersection	<input checked="" type="checkbox"/>	
Signage	<input checked="" type="checkbox"/>	
Pits	<input checked="" type="checkbox"/>	Refer to D
Fine Heights	<input checked="" type="checkbox"/>	
Barriers	<input checked="" type="checkbox"/>	
<b>DUMPS</b>		
Dust	<input checked="" type="checkbox"/>	
Outposts	<input checked="" type="checkbox"/>	
Signage	<input checked="" type="checkbox"/>	
Surface Condition	<input checked="" type="checkbox"/>	
Communication	<input checked="" type="checkbox"/>	
<b>STOCKPILE</b>	<input checked="" type="checkbox"/>	
<b>OTHER IDENTIFIED RISKS</b>		
Drainage	<input checked="" type="checkbox"/>	
Security	<input checked="" type="checkbox"/>	
<b>ADDITIONAL COMMENTS</b>		
<p>LIFT SAFETY ROLL ALONG NORTHERN SIDE ALONG FENCE.</p> <p>CHECK OVER LOADER OIL AND COOLANT LEVELS OK.</p> <p>PLACED LOADER SITE STRIPS IN CAR.</p> <p>SAFETY ROLL ALONG HIGH RAIL OK.</p> <p>SITE CLEAR.</p> <p>LOADER PARKED FUNDAMENTALLY STABLE.</p> <p>SITE IN GOOD SHAPE.</p>		

Mobile equipment pre-start check-sheet

Site inspection check-sheet

# Examples of Effective HSMS Elements

RISK ASSESSMENT SHEET				
COMPANY / OWNER:		WORKPLACE LOCATION:		
NO.	SPECIFIC ACTIVITY	HAZARD – RISK (What Can Harm You? – What could go wrong?)	CONTROLS	
	Let each specific task or steps refer to its this work activity eg. Please refer to page 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000			
1	Benching of Quarry Face	Working in base of face, falling from edge (machinery and human)	<ul style="list-style-type: none"> <li>• Catchment bund in place</li> <li>• No go zones - 5m</li> <li>• Competent personnel</li> <li>• Bench heights to an economical minimum</li> </ul>	
2	Managing Pit Water	Drowning	<ul style="list-style-type: none"> <li>• Pit pumped out to manageable level frequently</li> <li>• Edge protection / security fencing</li> </ul>	
3	Accessing Quarry Site	Unauthorized access, road conditions	<ul style="list-style-type: none"> <li>• Secured gates</li> <li>• Staging area for visitors</li> <li>• Bunding of access roads as required</li> <li>• Signage</li> </ul>	
4	Construction of ramp to feed bin	FEL accident, fall to ground	<ul style="list-style-type: none"> <li>• Use sound material to build ramp</li> <li>• Compact ramp adequately</li> <li>• Edge protection</li> </ul>	
5				

Prepared by (Risk Assessment team):  
 Date:  
 Approved by:  
 Date:

Risk assessment form (JSA)



Isolation procedure



# Examples of Effective HSMS Elements

Safety Management System or Plan Workbook  
Edition 1, 2010

Form: (Sample) Training / Skills Matrix & Training Plan

Note: Dates shown in the Table below should be the date the training was given and planned.

Person (Name)	Induction	Company Licence	Senior / First Aid	Health Certificate	Advanced First Aid Course	Fire Training	Electrical Awareness	Risk Management	Safe Work Method Statement Training	Emergency Management	Statutory First Aid course	Operate Dump truck	Quarry Excavator	Operate Road plant
Employees	Dates shown in green indicate date training was received, white date shown in red shows date planned													
Smith, Bob	01/14	01/14	01/14	01/14	01/14						01/14	01/14	01/14	01/14
Hudson, Dave	01/14	01/14	01/14	01/14	01/14						01/14	01/14	01/14	01/14
Golding, Fred	01/14	01/14	01/14	01/14	01/14						01/14	01/14	01/14	01/14
Brown, Gilly	01/14	01/14	01/14	01/14	01/14						01/14	01/14	01/14	01/14

34 Training & Development  
October 2010

Page 1

Approved by:  
Date:

Training Matrix/Plan

## Hutchison Quarries Pty Ltd

### EMERGENCY RESPONSE PLAN

ADDRESS: Pink Gum Lane, 12km's west of Warwick, Queensland off the Cunningham Hwy

CONTACT NO.s:  
Office Ph No: 87 4661 172  
Scott Hutchison: 0407 163 296  
Ben Hutchison: 0408 608 044

www.hvarion.com

#### IN CASE OF EMERGENCY

Minutes matter when it comes to saving a life.  
A safe rescue is an effective rescue.

#### INITIAL RESPONSE

1. Remove People in Immediate Danger
2. Alert Others, Raise the Alarm on UHF 28.
3. Confine Emergency Situation if Possible.

#### THE COMMUNICATOR'S ROLE

Determine the type of emergency.  
Determine the number of injured people.  
Determine the nature of injuries.

Call 000 or 112 (mobile) and ask the operator for the "Fire" / "Ambulance" / Police.

Give your name.  
Give your Phone No.  
Stay in contact in case emergency services requires further information.

#### SITE DIRECTIONS

- Give name of site: Hutchison Quarries Pty Ltd.
- Address of site: Lot 518 Pink Gum Lane Leslie Dam.
- How to get there: Travel along the Cunningham Hwy for approx 12km. Turn left into Rabbit Road and travel approx 1.2 km turn left into Pink Gum Lane and follow to end to Quarry.
- Specific Location within site: Staff member will meet emergency services at front gate.

#### DRSABCD action plan

In an emergency call Style (see 000) for an ambulance

**D** DANGER  
Secure the scene in safety if possible, without the aid of others.

**R** RESPONSE  
Check for response - ask others to check in case they are injured. If no response, call 000 or 112 (mobile) and ask the operator for the "Fire" / "Ambulance" / Police.

**S** SEND for help  
Get help from others, call 000 or 112 (mobile) and ask the operator for the "Fire" / "Ambulance" / Police.

**A** AIRWAY  
Open mouth and check for obstruction. If blocked, use the Heimlich manoeuvre. If blocked, use the Heimlich manoeuvre. If blocked, use the Heimlich manoeuvre.

**B** BREATHING  
Check for breathing - if no, then check for pulse. If no pulse, call 000 or 112 (mobile) and ask the operator for the "Fire" / "Ambulance" / Police.

**C** CIRCULATION  
Check for circulation - if no, then check for pulse. If no pulse, call 000 or 112 (mobile) and ask the operator for the "Fire" / "Ambulance" / Police.

**D** DEFIBRILLATION  
If a defibrillator is available, use it. If not, call 000 or 112 (mobile) and ask the operator for the "Fire" / "Ambulance" / Police.

#### FIRE

Do not use water on electrical fires until the current has been disconnected.

Smother the fire with dry materials.

IF SAFE TO DO SO:  
Select the correct extinguisher:  
1. Remove from bracket.  
2. Carry to scene of fire.  
3. Think of the word PASS:

P Pull the pin  
A Aim at the base of the fire  
S Squeeze the handle  
D Sweep from side to side

#### EVACUATION PROCEDURE

Hutchison Quarries Pty Ltd's - Ben Hutchison or most senior member on site should assume control as the Evacuation Warden and:

Assemble all persons on site at the selected assembly point (beside the site weighbridge, as indicated on the map below) depending on the nature of the circumstance.

Conduct a head count to ensure all persons are accounted for.

Control the emergency until the emergency services arrive or until the emergency has passed.

If possible evacuate all persons to a safe area.

Hutchison Quarries Pty Ltd will ensure every person entering the site for the purpose of carrying out work shall be inducted into the Emergency Response procedures.

An Emergency Response and Evacuation drill will be carried out at least every three (3) months.

Map Key:  
Main Road  
Assembly Point  
Evacuation Route  
First Aid  
First Aid Kit  
First Aid Box  
First Aid Kit  
First Aid Box  
First Aid Kit  
First Aid Box

Emergency Response Plan

- Fatal/Principal Hazards
  - Falls
  - Collisions
  - Entanglement
  - Pressure release

*Focus on the  
important stuff !!!!*

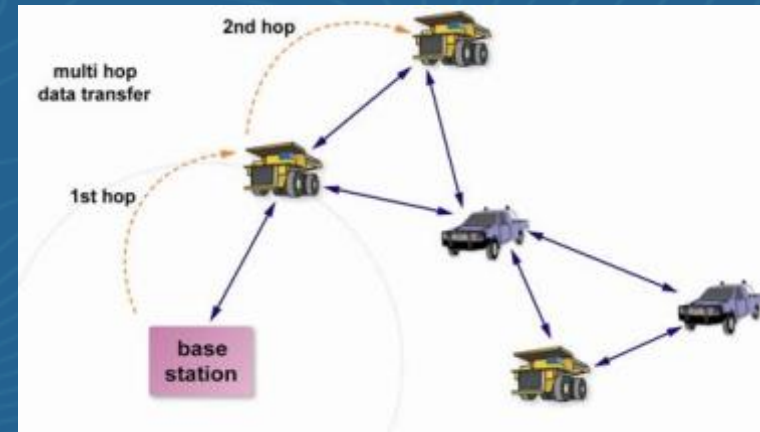
- Critical controls





# Common controls for vehicle interaction

- Positive 2 way Communication ( UHF, handheld 2-way )
- Light Vehicle identification ( Hi-vis paint, Flags etc.)
- Traffic management procedures ( 1 way traffic, stop signs etc.)
- Separation of HV and LV traffic routes ( often difficult on smaller sites )
- Proximity detection ( GPS, sensors, cameras )



# ***Critical controls for vehicle interaction***

- Ban access to work areas while heavy machinery is operating.
- Construct viewing areas outside of pits.
- Ensure that if light vehicles and/or pedestrians enter work areas, that all heavy vehicles stop operating ( some sites require operators to get out of heavy vehicles also), and don't commence work until LV or pedestrians have left area.
- Locate product test pads away from loading areas in clearly marked areas.
- Construct designated parking areas.
- Reallocate tasks that can be completed when machinery is not operating.



## *Critical controls*

**No entry into  
barricaded fall  
zone once rigging  
completed**





*Questions ??*

[wayne@minex.org.nz](mailto:wayne@minex.org.nz)  
mobile: 021 944 336