

Intel Construction EHS

Processes & Procedures Manual

The Intel Construction EHS Processes and Procedures Manual establishes minimum Environmental Health and Safety (EHS) performance expectations of construction contractors working on Intel sites worldwide.

Overview

The following processes and procedures define Intel's expectations that meet and in some cases *exceed* the most stringent Environmental Health and Safety (EHS) laws worldwide.

Intel provides a copy of this EHS Processes and Procedures Manual (herein referred to as the "Manual") to all firms who receive a bid award. The contract that follows a bid award indicates that the firm is responsible for knowing and complying with the information provided in this Manual. Intel expects these performance requirements to be understood prior to work commencing, be included in a project specific EHS Plan and be strictly complied with.

At Intel Safety Is A Condition Of Employment.

Even though construction priorities may change, Safety Is A Value at Intel.

Intel believes in an Incident and Injury Free Environment.

Intel constantly strives to meet or exceed all applicable laws and regulations in the communities in which we live and work.

Contents

Section 1 – General/Administrative	5
Section 1.1: Construction Expectations	5
Section 1.2: General Construction Rules	5
Section 1.3: Alcohol and Drugs	7
Section 1.4: Emergency Response Procedures	7
Section 1.5: Raised Metal Floor (RMF) Management	8
Section 1.6: First Aid and Medical Services	10
Section 1.7: Restricted Access Areas	10
Section 1.8: Mobile Phone Use	10
Section 1.9: Overtime Policy	10
Section 1.10: Governmental authority Inspection Visits	11
Section 1.11: Odor Protocol	11
Section 1.12: Pre-Task Planning (PTP)	11
Section 1.13: Roof Protocol	11
Section 1.14: Safety Communication and Safety Management By Walking Around (SMBWA)	12
Section 2 – Construction Safety	13
Section 2.1: Barricading and Safety Signage	13
Section 2.2: Compressed Gases	14
Section 2.3: Confined Space Management	15
Section 2.4: Cranes	16
Section 2.5: De-Install and Decontamination of Ducting/Piping/Tools and Other Equipment	19
Section 2.6: Dock Safety	19
Section 2.7: Energized Electrical Work (EEW) and Electrical Safety	22
Section 2.8: Elevators	22
Section 2.9: Fall Protection	23
Section 2.10: Forklifts	24
Section 2.11: Ground Fault Circuit Interrupters (GFCI)/Assured Grounding	24
Section 2.12: Hazardous Energies	26
Section 2.13: Housekeeping	26
Section 2.14: Impalement Prevention	27
Section 2.15: Ladders and Scaffolds	27
Section 2.16: Lighting	29
Section 2.17: Use of Cryogenics in Construction	30
Section 2.18: Mobile Elevated Work Platforms (MEWP)	31
Section 2.19: Cars, Pickups, Trucks, Industrial Vehicles, Golf Carts, All Other Powered Vehicles	32
Section 2.20: Overhead Work	33
Section 2.21: Personal Protective Equipment	33
Section 2.22: Powder Actuated Tools	36
Section 2.23: Powered Equipment and Hand Tools	36
Section 2.24: Safety Showers and Eye Washes	38
Section 2.25: Trenching and Excavations	38
Section 2.26: Permits	40
Section 3 – Fire Prevention	41
Section 3.1: General Fire Prevention	41
Section 3.2: Fire Extinguisher Requirements for Active Construction Sites	42
Section 3.3: Hot Work Permit	42

Section 3.4: Fire System Work/Red Tag Process	43
Section 3.5: Welding, Cutting and Brazing	43
Section 4 – Industrial Hygiene	44
Section 4.1: Construction Ergonomics.....	44
Section 4.2: Hazard Communication	44
Section 4.3: Heat and Cold Stress Management	44
Section 4.4: Laser Safety.....	45
Section 4.5: Potential Exposure Monitoring.....	46
Section 4.6: Asbestos and Lead	46
Section 5 – Environmental	47
Section 5.1: Air Pollution Control Plan (apcp)	47
Section 5.2: Hazardous Material Control Plan (HMCP)	49
Section 5.3: Pollution Prevention/Environmental Incident Response Plan (PPEIRP)	56
Section 5.4: Solid Waste Management Plan (SWMP).....	60
Section 5.5: Wastewater and Storm Water Management Plan (WSWMP).....	64
Section 6 – Appendices	71
Appendix A: Signage and Forms Examples	71
Appendix B: Energy Control Procedure Template	73
Appendix C: Abandoned Lock Removal Form	74
Appendix D: Chemical Risk Assessment Template.....	75
Appendix E: Site Planning Activities	77
Appendix F: Area Water Application Log Sheet	79
Appendix G: Chemical Application Checklist	80
Appendix H: Surface Preparation And Coating Checklist.....	81
Appendix I: Mobile Equipment Setup Checklist.....	82
Appendix J: Demolition Operations Checklist.....	83
Appendix K: Contractor Chemical Use Request Form.....	84
Appendix L: Hazardous Material Receipt Checklist.....	86
Appendix M: Hazardous Material Storage Checklist.....	87
Appendix N: Hazardous Material Disposal Checklist	88
Appendix O: Daily Hazardous Material Storage Area And Point Of Use Audit Checklist	89
Appendix P: Contractor/Subcontractor Hazardous Material Control Program Compliance Audit Checklist	
90	
Appendix Q: Hazardous material Work Observation Form	92
Appendix R: Solid Waste Reduction Strategies.....	93
Appendix S: Solid Waste Estimations.....	95
Appendix T: Determining Solid Waste Management Return on Investment	97
Appendix U: Site Planning Activities Checklist	98
Appendix V: Area Preparation For Erosion/Sediment Control Checklist	100
Appendix W: Erosion/Sediment Control Sample Inspection Log.....	101
Appendix X: Area Preparation For Mobile Equipment Washing & Cleaning Checklist	102
Appendix Y: Area Preparation For Small Equipment Washing & Cleaning Checklist.....	103
Appendix Z: Area Preparation For Leak Testing, Flushing & Passivation Of Systems Checklist	104

List of Tables

- Table 1.** Barricading by hazard category
- Table 2.** Timing and color code for denoting quarterly tests performed on cords and cord- and plug-connected equipment.
- Table 3.** Minimum illumination intensities in foot-candles based on location.
- Table 4.** Building materials which may be considered hazardous materials due to their potential to contain asbestos (not an inclusive list).
- Table 5.** Daily hazardous material storage area and point of use audit checklist
- Table 6.** The roles and responsibilities of the General Contractor (GM)/Construction Manager (CM), Intel EHS and Intel ERT.
- Table 7.** Waste streams for disposition of solid waste
- Table 8.** Wastewater and Storm Water Management Plan – Expectations and Success Criteria
- Table A9.** End-Use Markets for Recycled Construction Wastes
- Table A10.** Typical Building Content in United States
- Table A11.** Density of Typical Construction Waste Materials

List of Figures

- Figure 1.** Raised Floor Entry Requirements - Examples

SECTION 1 – GENERAL/ADMINISTRATIVE

SECTION 1.1: CONSTRUCTION EXPECTATIONS

- 1.1.1. On Site Contractor Companies: It is each company's responsibility to ensure that their workers and subcontractor employees have a good working knowledge of their company's environmental, health and safety (EHS) rules and procedures along with those required by Intel.
- 1.1.2. Code Compliance: It is every employee's responsibility to notify their supervision, an Intel Sponsor or the Intel Project Manager of any code violations that would result from execution of the desired work or that occur inadvertently as a result of their work.
- 1.1.3. Damage to Facilities: Contractors are responsible and accountable for the work they perform at Intel. All damage to buildings, grounds, lawns, equipment and other areas that results from their project work, negligent or not, will be the responsibility of the contractor to correct. The Intel Project Manager must be advised immediately of any and all damage that occurs.
- 1.1.4. Ownership: The Intel-Contractor partnership requires all participants to accept a shared ownership in assuring that the total project is a success. In keeping with Intel's team philosophy, construction and design contractors are part of the project team from design to closeout. Construction management and contractors are expected to attend design meetings and participate as part of the design team as well as having ongoing involvement in the overall success of the project delivery process. Contractor active participation makes this work.
- 1.1.5. Permits: All work at Intel is to be done in compliance with permit requirements. This will include pre-task planning (PTP) and Intel's Site Incident Prevention Program (SIPP) permitting process. Intel's Sponsor or Project Manager can provide more information as needed.
- 1.1.6. Project and Safety Awareness: All construction personnel are required to:
 - a. Acknowledge that safety comes first
 - b. Be familiar with chemical Material Safety Data Sheets (MSDS), Emergency Response Team (ERT) notification requirements as well as all EHS regulations, permits and policies that are applicable to the project
 - c. Be proactive and share the initiative in problem solving. If there is a better, safer or more cost-effective way of doing business, let your Supervision know.
- 1.1.7. Project Team Expectations: Projects teams will develop a set of reasonable team expectations in relation to EHS programs and identify any specific EHS challenges at the start of every project. The success of the project is evaluated by the degree to which the project team meets the agreed upon expectations.
- 1.1.8. Understand Facilities System Impact: All contractor companies must have a documented impact mitigation plan specific to the project. It is your responsibility to know and understand the systems you are working on.

SECTION 1.2: GENERAL CONSTRUCTION RULES

General site requirements include and are not limited to:

- 1.2.1. Good housekeeping – clean as you go is the rule, not the exception.
- 1.2.2. 100% fall protection is required for work over 6 feet (US) or where there is a risk of fall liable to cause injury (EU).

- 1.2.3. A Zero tolerance policy applied for willful violations to any Fatality Prevention Program such as electrical safety, confined space, energized electrical work, crane activity, excavation, fall protection, trenching, and mobile elevated work platforms.
- 1.2.4. Never violate any warning signs or barricades – only enter a cordoned off area with permission from area owner and only with appropriate PPE.
- 1.2.5. Observe all general traffic safety requirements and traffic signage.
- 1.2.6. Immediately report any unsafe conditions to your supervision. All unsafe conditions must be corrected prior to starting work. If it cannot be done safely, it will not be done.
- 1.2.7. Attend and participate in all scheduled safety meetings.
- 1.2.8. Immediately report any injury/illness to your supervision. Contractors are to immediately report any and all injuries, illnesses or incidents to Intel project management or Intel sponsor.
- 1.2.9. Immediately report to supervision the use of any medication that could cause physical or mental impairment or diminished concentration at work.
- 1.2.10. Prior to starting work, ensure that all hazards are defined and mitigated for each step of work in the Pre-Task Plan (PTP).
- 1.2.11. Wear all appropriate work clothing and personnel protective equipment (PPE). If in doubt, ask.
- 1.2.12. If you are not sure how to perform your assigned task safely, stop and contact supervision.
- 1.2.13. Horse play is not allowed and may result in termination of site access privileges.
- 1.2.14. It is Intel's policy that no weapons, including fixed blade knives or folding knives with blades in excess of 3-1/2 inches be brought on the premises and parking areas at any time.
- 1.2.15. Smoking and chewing tobacco is not permitted in any of the Intel buildings and on some patios. Designated smoking and chewing areas have been established. Smoking and chewing materials must be disposed of in proper containers, not on the ground. Smoking in the service yard is permitted only in designated areas.
- 1.2.16. Sleeping on site premises, except where permitted, may result in termination of site access privileges.
- 1.2.17. Operate only the equipment and tools that you have been trained and authorized to use.
- 1.2.18. Modification of equipment is prohibited. Where changes are made to the design, function or safety of tools, equipment or machinery (or an assembly of machinery), contractors must obtain written approval from the manufacturer and disclose to Intel EHS.
- 1.2.19. Only rain water can enter a storm drain.
- 1.2.20. Cover or properly store materials outside to prevent them from entering storm drain system.
- 1.2.21. Always employ erosion control practices to prevent soil from entering storm drain system.
- 1.2.22. All chemical waste disposal and materials recycling must be coordinated through Intel using only Intel approved vendors.

- 1.2.23. Proper lifting techniques must be used for all material handling.
 - a. Items 10' or greater in length shall require 2 people under the following conditions:
 - i. when transporting material within an operating facility
 - ii. around or near operating equipment in support buildings to an operating facility.
- 1.2.24. Contractors must comply with the sites specific mobile phone control process.

SECTION 1.3: ALCOHOL AND DRUGS

- 1.3.1. Intel is committed to fulfilling its legal and ethical responsibility to maintain a safe and efficient working environment. Persons who work while under the influence of illegal drugs or alcohol present a safety hazard to themselves and their co-workers. Drugs and alcohol are not allowed at any time.
- 1.3.2. Drug Testing - When Intel has a reasonable suspicion that a contractor or supplier worker/representative is under the influence of alcohol or drugs, Intel may require the contractor or supplier employer to perform drug and/or alcohol testing of the individual or remove the individual from the premises. Intel also may require removal from site premises of any contractor or supplier worker/representative who refuses to cooperate during a reasonable investigation.
- 1.3.3. "Reasonable suspicion" is present when an observation of a change in a worker's behavior or conduct indicates noticeable performance impairment to the observer.
- 1.3.4. Drug and alcohol program (where legally applicable):
 - a. All Contractor's workers assigned to site premises will pass a screen test (urine analysis) for drugs and alcohol within seventy-two hours (3 days) before arriving on-site.
 - b. Contractor will perform immediate drug and alcohol testing of any worker so assigned if Contractor has a reasonable suspicion of drug or alcohol impairment.
 - c. Contractor will perform an immediate drug and alcohol testing of any worker involved in an injury requiring a trip to the doctor.
- 1.3.5. No person will be allowed to work on the job site until they have cleared their drug/alcohol screen. All personnel testing positive for drugs or alcohol will not be permitted to work at the job site. Refusal of any drug/alcohol test constitutes grounds for immediate dismissal from the site.
- 1.3.6. Legal use of prescription or over the counter medications may result in impairment affecting the overall safety of the workforce. Personnel using prescription or over the counter medications which may impair their ability to work safely must inform their supervision or company occupational health representative prior to performing work.

SECTION 1.4: EMERGENCY RESPONSE PROCEDURES

- 1.4.1. Contractor will contact project management prior to commencement of work, to define, document, and communicate clear roles and responsibilities of each in the event of an emergency.
- 1.4.2. At a minimum, Contractor agrees to communicate and ensure that all workers will comply with any instructions or directions of Intel's Emergency Response Team.

- 1.4.3. Contractor must ensure training is provided to workers which adequately informs all of site specific emergency response procedures, including, but not limited to:
 - a. Emergency notification procedures, including emergency phone numbers and contacts.
 - b. Emergency evacuation procedures, including routes of egress and designated assembly points.
 - c. Location of emergency medical treatment facilities and means of obtaining medical support in the event of an emergency.
 - d. Emergency job safe shutdown procedures.
 - e. Site spill response requirements and appropriate emergency response contact numbers.
- 1.4.4. In the event of an evacuation, workers will evacuate immediately to the designated assembly area. Workers will be instructed to not stop to remove clean room attire or Personal Protective Equipment (PPE) or to retrieve personal belongings.
- 1.4.5. In the event of an area power outage, it may take up to 20 seconds for emergency power to illuminate the area. Move only when it is safe to do so.
- 1.4.6. In the event of an area emergency, proceed to a safe area and use an emergency phone or wall/area phone to contact security (or other approved communication means). When talking with security, stay on the line until told to hang up. Be prepared to tell security the location and nature of the emergency.
- 1.4.7. If agreed that the Contractor will create and maintain a formal emergency response team for the project, a documented site emergency response plan must be completed, reviewed and approved by Intel project management and maintained on the site.

SECTION 1.5: RAISED METAL FLOOR (RMF) MANAGEMENT

- 1.5.1. The areas beneath the raised floors have been determined to be a Confined Space. Initial hazard assessments were completed for areas beneath the raised floor and determined to be Non-Permit Required Confined Space during normal working conditions.
- 1.5.2. Non-Permit Required Confined Space (NPRCS): A confined space without a serious recognized safety or health hazard is considered a Non-Permit Required Confined Space.
- 1.5.3. Conditions that may not normally be present that can (or have the potential to) cause a serious safety or health hazard may change the classification of the raised floor area to a Permit Required Confined Space.
- 1.5.4. Permit Required Confined Space (PRCS): A confined space that has a serious recognized safety or health hazard present (e.g., hazardous atmosphere, unguarded equipment, chemical spills, etc.).
- 1.5.5. Entry into a Non-Permit Required Confined Space does not require the issuance of a permit.
- 1.5.6. Contractor is responsible for having the following equipment on hand prior to removing a raised floor tile:
 - a. Barricade signage
 - b. Raised Floor Pre-Entry Checklist
 - c. Appropriate/site approved tile pullers
 - d. Rigid barricades
 - e. Red barrier tape (ONLY if approved by site EHS for large leading edge situations).

- 1.5.7. Removal of Tiles: The open area of the floor must be completely barricaded prior to removing any tile. Where tiles are removed (including single tiles) and the area is being left unattended (breaks, lunch or the end of the day) the tiles must be replaced OR barriers secured to the RMF (unless alternate plan is EHS approved).
- 1.5.8. Barricade signage must be filled out with all of the appropriate information and posted onto the barricade.
- 1.5.9. If entry beneath the raised floor tiles is required, it is considered entry into a Non-Permit Required Confined Space (**Figure 1**). The Raised Floor Pre-Entry Checklist must be filled out and the entrant must have a buddy present.

RAISED FLOOR ENTRY REQUIREMENTS Examples

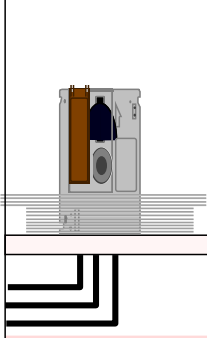
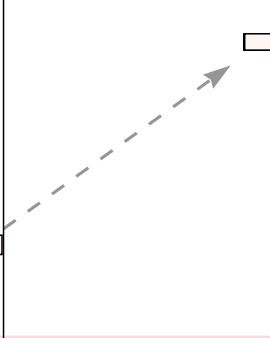
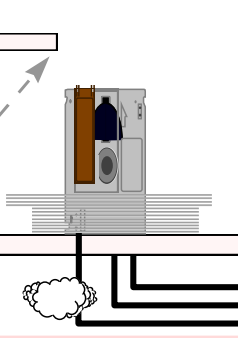
Non Permit Required Confined Space (NPRCS) Applies	No Confined Space Requirement	Permit Required Confined Space (PRCS) Applies
		
<p style="text-align: center;">Floor grate not removed</p> <p style="text-align: center;">No identified potential hazards in area based upon completion of Raised Floor Pre-Entry Checklist</p>	<p style="text-align: center;">Floor grate removed</p> <p style="text-align: center;">No overhead obstructions</p>	<p style="text-align: center;">Floor grate not removed</p> <p style="text-align: center;">Hazards identified in area cannot be controlled or eliminated based upon PRCS reclassification requirements</p>

Figure 1. Raised Floor Entry Requirements - Examples

- 1.5.10. Buddy/Spotter responsibilities are for non-permit required entries only. If space is classified as a permit required space, they must follow the requirements of the site confined space program.
- 1.5.11. Ensure other work in the area does not affect the person working below the raised floor.
- 1.5.12. Observe the person performing the work and notify ERT in the event of an emergency.
- 1.5.13. Notify person under the floor if conditions change.
- 1.5.14. Maximum travel distance allowed underneath the raised floor from the opening is 6 tiles. If you need to travel in excess of 6 tiles a second opening should be provided.
- 1.5.15. If the space beneath the raised floor contains or has the potential to contain any recognized serious safety hazard (or if any of the questions on the Pre-Entry Checklist have been answered yes), it may be considered a permit required confined space and consultation with Construction EHS is required prior to entry (**Figure 1**).

- 1.5.16. When pulling floor tiles, all workers must use proper tile lifting tools and lifting technique (use force of the legs, no lifting and twisting, etc.).
- 1.5.17. All floor tiles will be stacked flat and barricaded to prevent the possibility of damage, tripping hazards, etc.
- 1.5.18. Floor tiles shall be stacked front to front and back to back and shall be stacked no higher than 8 tiles high.
- 1.5.19. When replacing floor tiles that have been removed and/or modified be sure to replace tiles and support structures exactly as they were designed. If unsure of the proper structural configuration, contact Intel project management for proper placement.
- 1.5.20. Contact your Site Construction EHS representative for additional required training.

SECTION 1.6: FIRST AID AND MEDICAL SERVICES

- 1.6.1. Contractor will provide first aid and medical services required for contractor workers unless specifically agreed and clearly defined, in writing, with Intel project management as part of the project plan.
- 1.6.2. The General Contractor/Construction Manager will assume responsibility for first aid/medical services management for all contractors under contract unless otherwise agreed with Intel.
- 1.6.3. First aid kits are not allowed in the field.

SECTION 1.7: RESTRICTED ACCESS AREAS

- 1.7.1. For restricted access/ swipe access areas contractors must complete the required training and obtain area badge swipe access prior to entry (no tailgating).

SECTION 1.8: MOBILE PHONE USE

- 1.8.1. The use of mobile phones while at work can presents a hazard or distraction to the user and/or co-workers. It is prohibited to make or receive calls while:
 - a. Operating any type of vehicle or equipment
 - b. Working at height
 - c. Involved in high risk construction activities (e.g., spotting, completing mech/elec tie-ins, permitted activity etc.).
- 1.8.2. If making or receiving a call ensure you are in a safe location. Do not pick up the call if you are in a high risk area; always move to a safe area to make/answer calls. Operate "no walking while texting" policy (e.g., no crossing roads, no walking up/down stairs).
- 1.8.3. Site phone policies vary, some sites do not permit mobile phone use for any unauthorised users and some sites operate designated phone points for phone use. Contractors must comply with the site specific mobile phone control process.

SECTION 1.9: OVERTIME POLICY

- 1.9.1. Normal craft hours should not exceed 60 hours per week.
- 1.9.2. Work in excess of 60 hours per week must be pre-approved by the Intel Project Manager or designee and Intel Construction EHS representative. If projects require work in excess of 60 hours per week, a formal action plan must be in place that prevents fatigue that may contribute to hazardous work conditions. This plan must be presented to the Intel Project Manager or designee and Construction EHS representative for approval 48 hours before the extended shift or proposed overtime work begins.

- 1.9.3. Other variables that must be taken into consideration in limiting overtime are: health and physical condition of the individual worker, excessive heat, extremely strenuous work, etc.

SECTION 1.10: GOVERNMENTAL AUTHORITY INSPECTION VISITS

- 1.10.1. Intel's Project Manager, Security and Site EHS departments must be notified immediately of any governmental authority requested inspections or visits (e.g., OSHA or EPA). An Intel EHS department member will accompany the inspection team. Any violations or fines incurred by the Contractor will be the contractor's responsibility to correct.

SECTION 1.11: ODOR PROTOCOL

- 1.11.1. Contractors must notify the Intel Project Manager prior to conducting any work activities that generate odors. This includes, but is not limited to painting, grinding, sanding, heat shrinking, and cleaning. Odor control plans must be approved through the site specific control process.

SECTION 1.12: PRE-TASK PLANNING (PTP)

- 1.12.1. Pre-task planning is a process to be use as a job aid to accomplish our work safely and efficiently.
- 1.12.2. The PTP will eliminate incidents/accidents and business interruptions by utilizing and standardizing methods to recognize existing and potential hazards, establish work crew coordination, and identify appropriate mitigation measures to ensure all tasks are performed incident free.
- 1.12.3. All tasks to be performed on Intel construction projects must utilize the site PTP process prior to the work start.
- 1.12.4. A PTP will be prepared for each scheduled construction activity and shall consist of the following:
 - a. Review and clarification of the job scope.
 - b. Identify tasks to be performed to complete the work in a sequential order.
 - c. Identify the hazards associated with each step of the task.
 - d. Identify the mitigating actions your crew will take to control the safety, efficiency and operational risks and impacts this work might cause.
 - e. Develop contingency plans. In case things go wrong and/or if all risk cannot be fully safeguarded.
 - f. Communication and understanding of each crew member's roles and responsibilities for the task.
 - g. Establish ownership and accountability, everyone on crew signs the PTP. Foreman verifies PTP is sound.
 - h. Post the PTP at the work location for the crew to review and update throughout the day.
 - i. Communicate PTP to affected parties and or crews.
- 1.12.5. If conditions change, stop the work, assess and update the PTP. Prior to restarting work, the crew and the foreman must initial the PTP.

SECTION 1.13: ROOF PROTOCOL

- 1.13.1. Prior approval must be obtained from Intel's Project Manager or Site Security before accessing any roof area. Items must not be stored on or dropped from the roof. All personnel accessing any roof must receive a Roof Protocol briefing.

- 1.13.2. For tasks where there may be a fall exposure a specific fall protection plan must be reviewed prior to performing the task on the roof.
- 1.13.3. Eating, drinking and the use of tobacco products are prohibited on the roof.
- 1.13.4. Roof membranes must be protected from damage by construction work, and waste materials must be removed from the roof when construction is finished.

SECTION 1.14: SAFETY COMMUNICATION AND SAFETY MANAGEMENT BY WALKING AROUND (SMBWA)

- 1.14.1. Contractors are required to have contractor management attend weekly Intel construction operations meetings (or as otherwise defined) with Intel Project Management to review all site related incidents and issues and ensure site communication.
- 1.14.2. All workers are required to attend a weekly safety meeting led by their safety group leader or foreman (tool box meetings) and a periodic mass safety meeting (as scheduled).
- 1.14.3. Safety will be a component of the daily white boards, and white boards will be used to communicate and resolve field safety concerns.
- 1.14.4. All contractors will establish a means for distributing written safety material as defined by the site (safety bulletins, site updates, lessons learned, etc.).
- 1.14.5. Contractor management is to verify compliance with Intel and EHS requirements by conducting site inspections and audits by Safety Management by Walking around (SMBWA).
 - a. At minimum, a weekly walk around will be conducted by the Contractor management to reinforce correct behavior and coaching to modify unwanted behavior.
 - b. All work zones must be walked weekly at a frequency agreed with the client.
 - c. At least one walk will be recorded weekly.
 - d. Workers will participate in SMBWA by actively observing co-workers, encouraging and demonstrating an incident and injury free environment.

SECTION 2 – CONSTRUCTION SAFETY

SECTION 2.1: BARRICADING AND SAFETY SIGNAGE

- 2.1.1. Contractors will provide all necessary barricades, safety signs, stanchions, safety cones or safety warning tape as required to isolate and protect unsafe work areas from workers, pedestrians or vehicle traffic (**Table 1**). For factory fabrication areas, barricades and stanchions may be provided, check with Intel Construction EHS at your site.

Table 1. Barricading by hazard category

Barricade / Sign Color	Hazard Class	Actions	Examples
Yellow	Occupational Hazard	Do not cross until hazard is identified and safe passage assured	Trip hazard area
Red	High or imminent danger/ Hazard	Never Cross. If access is required, coordinate with barrier owner	EEW in progress, overhead suspended load, high pressure test, fall exposure, overhead works
Blue	Tool qualification in progress	Do not cross without permission from the owner	Equipment being qualified for production
Black	No safety related issues	No restrictions on crossing	Lay down area, tool box storage area

- 2.1.2. Where caution (yellow) warning tape or yellow chain is used as barricade material, signs denoting the hazard shall be secured to the barricade. Employees are allowed to pass or cross caution tape only after assessing the hazards posted on the signage. Caution tape and signs shall be erected around all sides of the controlled area, and at each access point.
- 2.1.3. Where danger (red or red and white) tape or red chain is used as barricade material, signs denoting the hazard shall be secured to the barricade. Personnel, except those engaged in the operation for which the tape/signs were erected, are not allowed to pass or cross danger tape. Danger tape and signs shall be erected around all sides of the controlled area, and at each access point.
- 2.1.4. Where ERT tape has been used to barricade off an area it denotes an active risk is present (e.g., leak, spill, etc.). NEVER CROSS ERT TAPE - only ERT personnel are permitted to access behind ERT tape.
- 2.1.5. Adequate and safe passage shall be established for workers at the active construction site to ensure effective separation between vehicular paths and walkways. Appropriate caution and warning signs shall be installed at crossings and when necessary, a flagman may also be used to control the traffic flow.
- 2.1.6. The walkways shall meet the applicable safety standards, including but not limited to proper barricade and floor/ground demarcation.
- 2.1.7. Contractors must post appropriate signage with name, phone or means of contact, duration of project and reasons for the barricade (hazard present).
Sample signage can be found in **Appendix A: Signage and Forms Examples**.
- 2.1.8. Always maintain an escape path around barricades. LSS or emergency routes must never be blocked with barriers without approval.
- 2.1.9. All barricading/signage will be removed after work is complete and hazard is eliminated.

- 2.1.10. Active Construction Site Exiting Requirements: Until the permanent Emergency Exit Signs have been installed at an active construction project, temporary EXIT signage shall be posted.
- a. Locate the EXIT signs at every designated and completed EXIT.
 - b. Evacuation route signs must be located as necessary to ensure personnel are directed to a safe location, care should be taken to ensure that EXIT signs and Evacuation routes do not place the personnel into a more hazardous area such as an unfinished stairwell, discharge personnel into an open pit or other area deemed to be unsafe.
 - c. Provide additional EXIT signage in any areas that the EXITs are not easily visible, or become obstructed as interior walls and equipment is installed.

SECTION 2.2: COMPRESSED GASES

- 2.2.1. Cylinders will be stored in designated areas where they will not be damaged by passing or falling objects.
- 2.2.2. Storage facilities will be designated as a non-smoking area and posted with the names of the gases to be stored.
- 2.2.3. Outside storage of cylinders must be protected from adverse weather conditions.
- 2.2.4. All compressed gas cylinders will be stored with the protective caps installed on the cylinders. Replace the valve caps on cylinders when regulators are removed.
- 2.2.5. Oxygen and Fuel Gas cylinders must be stored separately – a minimum of 6 meters between them.
- 2.2.6. Cylinders will not be stored where the temperature is above 125 °F or in direct afternoon sunlight.
- 2.2.7. Do not accept for use any cylinder that is not identified by a legible label or stencil. Cylinders of this type must be tagged and returned to the supplier.
- 2.2.8. Do not alter numbers or permanent markings on cylinders. Labeling cannot be easily removable.
- 2.2.9. The person responsible for handling, transporting or connecting/using the cylinder must check the identity of the gas by reading the label. If necessary, review the MSDS concerning potential hazards.
- 2.2.10. Never transport cylinders without valve caps in place.
- 2.2.11. Cylinders must be transported by specially designated hand-trucks or by securing (e.g., platform carrier) in an upright position with cylinder caps in place. They must not be allowed to roll around in the bed of a truck. Never use a sling to carry or haul cylinders. All cylinders must be removed from trucks prior to use, except those specially mounted for cutting and heating torches (e.g., welding trucks).
- 2.2.12. Cylinders will never be taken inside tanks or vessels where work is to be performed. Gas lines will be removed from space when work is not in progress.
- 2.2.13. Oxygen/acetylene cutting/heating torches will have check valves on the torch body.
- 2.2.14. Regulators must be used only with the gas or gases and pressure for which they are designed.

2.2.15. You shall not:

- a. Drop the cylinders or permit them to strike each other violently
- b. Attempt to fill a cylinder
- c. Transfer gases from one cylinder to another or mix gases
- d. Place cylinders where they might become part of an electrical circuit. They must never be used as a grounding connection
- e. Strike an arc on, or torch burn cylinders
- f. Cylinders, cylinder valves, couplings, hose, regulators, gauges, fittings and apparatus will be kept free from oily or greasy substances. Cylinders or apparatus must not be handled with oily hands or gloves
- g. Gas hoses will be provided with non-metallic covering
- h. Fuel lines will be thread-specific and color identified. Red for fuel lines and green for oxygen.

SECTION 2.3: CONFINED SPACE MANAGEMENT

Intel's confined space entry standard is available at <http://ehs.intel.com/compliance/programs.htm#safety> or from the sites construction EHS manager.

2.3.1. A confined space is any space that:

- a. Is large enough and so configured that an worker can bodily enter (any portion of the body) and perform assigned work
- b. Has limited or restricted mean for entry and/or exit
- c. Is not designed for continuous occupancy.

2.3.2. A non-permit confined space is a confined space that does not contain any hazard capable of causing death or serious physical harm nor has the potential to contain an atmospheric hazard.

2.3.3. A Permit Required Confined Space is a confined space that has one or more of the following characteristics:

- a. Contains or has the potential to contain a hazardous atmosphere
- b. Contains a material that has the potential for engulfing an entrant
- c. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section, or
- d. Contains other recognized serious safety or health hazard.

2.3.4. Contractors must ensure all confined spaces are identified and managed using documented site confined space management methods.

2.3.5. Confined space training must be completed by anyone entering a confined space or acting as a confined space buddy and site permitting requirements must be complied with.

SECTION 2.4: CRANES

- 2.4.1. All crane work must be pre-planned to ensure the safety of the process.
Key Elements of Crane Planning:
- a. Documented plan for the lifting operation (including risk assessment)
 - b. Provision(s) of properly trained and competent personnel (operators, riggers and signal persons)
 - c. Selection, provision and use of suitable crane and equipment
 - d. Adequate supervision by personnel having the necessary authority to control the operation
 - e. Ensuring that all the necessary test certificates and other documents are in order
 - f. Prevention of any unauthorized movement or use of the crane
 - g. Ensuring the safety of persons not involved in the lifting operatives.
- 2.4.2. It is the responsibility of the contractor and/or crane equipment supplier to ensure any crane used on an Intel site is in safe working condition. Documentation must be supplied with the crane and reviewed with project management prior to any work.
- 2.4.3. Documentation required:
- a. The crane has been inspected and maintained in accordance with the manufacturer's specifications, OSHA, ASME B.30 standards and/or local authority having jurisdiction requirements.
 - b. Cranes will be equipped with an anti-two-blocking device.
 - c. Operator's manual must be available in the cab of the crane.
 - d. The crane has a current annual inspection by a person qualified to inspect and certify cranes.
 - e. Logs for daily, weekly, monthly and annual inspections are available in the crane cab for inspection.
 - f. The operator must have a current crane safety-training card or documentation verifying the operator's qualifications to operate this specific type of crane. The crane operator will be licensed by the local authority having jurisdiction.
 - g. Written safe crane operating procedures are available in the cab of the crane. These are to be written by the contractor. The operator's manual may not be used in lieu of separate safety procedures.
 - h. A lift plan is required for all crane lifts.
 - i. Any lift that is 75% or greater that the rated capacity of the crane pick configuration or any lift deemed a critical lift must be signed off by an appointed/competent person.
 - j. Rated capacity charts must be available.
 - k. All riggers and signal persons must be trained and competent.
- 2.4.4. Crane Operation:
- a. Crane safety features must be present and enabled:
 - i. Load Moment Indicators in the cab of cranes (backed up by visual and audible alarms)
 - ii. Safe level indication in the cab of the crane and on outriggers (if applicable)
 - iii. Limiting devices
 - iv. Wind speed/direction indicator.

If the required safety features are not present on the crane escalation to Intel construction EHS is required to assess the use of the crane.

- b. At no time will a crane be operated with computer systems or limit switches in a nonfunctioning or override condition.
- c. The weight of the load must be known (not estimated) or means taken to accurately weigh the load before any pick.
- d. An assessment of ground conditions must be completed, all outriggers must be fully extended and set on stable ground and solid cribbing before any lift.
- e. All rigging gear shall be inspected before each use. Damaged equipment must be immediately taken out of service. All rigging gear must be rated to a safe capacity for the lift.
- f. In order to ensure the implementation of a safe system of work one person must be appointed to organize and control the lifting operation.
- g. A qualified dedicated signal person is required.
- h. No slewing over operatives is permitted and an audible alarm must be sounded whenever a load is to be lifted near other site workers.

2.4.5. Restricted Work Area for Crane Safe Working Distances:

- a. Protocols must be established to prevent accidental struck by and/or pinch point injury(s) to those working on or around cranes while in the vicinity. Practices and Procedures to consider, but are not limited to, include:
 - i. Clearly defined "restricted work area" around the crane's swing radius (cab, counterweights and outrigger areas)
 - ii. Identify authorized personnel, if any, allowed during crane operation
 - iii. Include provisions for planning, training and inspections required
 - iv. Servicing/Maintenance safe working procedures for working within the cranes mechanical systems and the inadvertent movement of components (i.e. Lockout - Tagout).

2.4.6. Multiple Lift Rigging: The use of multiple lift rigging (treeing) procedures as defined in OSHA CFR1926.753(e) are allowed with acceptance from the Intel construction EHS Manager and the construction Project Manager. A detailed plan must be submitted to Intel EHS as a part of the CPEP for acceptance that addresses at least each item found in OSHA 1926.753(e) or authority having jurisdiction including training documentation, rigging documentation and auditing process.

2.4.7. No personnel will ride the hook.

2.4.8. Critical lifts require a lift plan signed off by an appointed / competent person.

Critical lifts include:

- a. Using multiple cranes to pick a load
- b. Lifts over occupied buildings or areas containing hazardous gases/chemicals
- c. Cranes operating within 20 m of an overhead power line
- d. A lift that is 75% or greater than the rated capacity of the crane
- e. A lift where the load requires exceptional care in handling because of the size, weight, close tolerance of installation, high susceptibility to damage or other unusual factors.

2.4.9. Due to the seriousness of crane safety procedures, any operator or supervisor who violates these procedures will be subject to immediate disciplinary action, up to and including removal from the site.

2.4.10. For multiple cranes on-site (whenever two or more cranes are in use on a site), the following procedures must be followed:

- a. A written safety plan must be submitted to project management for the use of multiple tower cranes, including a tower crane and mobile cranes, prior to work on a site.
- b. Crane use meetings will be held daily before work starts. Attending:
 - i. Operators
 - ii. Dedicated signal personnel and riggers
 - iii. Foremen of crews using cranes.
- c. A written pre-plan must be submitted as part of the project safety plan.
- d. Radio communications between all operators and signal personnel.
- e. Quadrants of operation clearly defined.

2.4.11. Tower cranes:

- a. Tower crane selection and sizing must be pre-planned as a function of the project safety plan.
- b. Consideration must be given to local conditions, potential permits and licensing required.
- c. A specific safe working procedure for tower crane erection, jumping, or dismantling must be created. A documented meeting must be held at the job site prior to these work activities commencing. The following criteria below will be used as a minimum to ensure safe working means and methods.
 - i. All tower cranes must be erected, jumped, dismantled, and operated in accordance with the manufacturer's specifications and procedures. The operating manual must be provided on-site.
 - ii. The lessor/owner must provide the erector and project management with a list of verified weights of all major component parts.
 - iii. The lessor/owner must provide data on all critical components.
 - iv. The lessor/owner must provide the erector and project management with written procedures for erecting, jumping (when appropriate), and dismantling each major component. This will include proper torque specifications and procedures.
 - v. The lessor/owner must ensure that all components of the crane arrive at the job site in safe working condition.
 - vi. The lessor/owner, erection contractor, mobile crane operator, and/or representative, and project supervision must make a physical inspection of the erection site to ensure adequate setup area and proper radius and load chart capacities.
 - vii. The erector must provide a load chart for the crane to be used in the erection process.
 - viii. The erector must provide a fall protection work place for the erection, jumping, or dismantling process.
 - ix. The erector's representative must be on the job site to monitor the erection process.
 - x. Soils and footings for both the tower and mobile crane must be verified as adequate for the erection process.
 - xi. The erector's representative must inspect, test, and certify, in writing, that the tower crane is in safe working condition prior to any work being performed.
 - xii. Public protection and worksite personnel safety must be properly planned for.
 - xiii. The tower crane contractor or contracting entity shall create a tower crane rescue plan and drill the successful operation of the rescue plan.

2.4.12. Environmental Conditions:

- a. All crane manufacturers' specifications and procedures must be followed for mitigating environmental conditions (weather - wind, lightning, *etc.*).
 - i. No crane shall operate in wind speed outside of the engineered lift plan and/or manufacturers' specifications.
- b. An inclement weather plan shall be created by the contracting entity.

SECTION 2.5: DE-INSTALL AND DECONTAMINATION OF DUCTING/PIPING/TOOLS AND OTHER EQUIPMENT

- 2.5.1. De-Install 6D: Demolition of any tool, equipment or construction materials that had previously come in contact with ANY CHEMICAL must be performed in strict accordance with Intel's demolition and decon procedures referred to as the "6D Decon Process".

Tools allocated as scrap as part of the demo process must be managed in accordance with Intel's Scrap policy. The policy also covers recycling incomplete tools and parts. Compliance ensures IP and hazardous waste are properly managed. The Scrap policy is available from site EHS.

- 2.5.2. Deinstall / Decon activities must be completed by trained demolition and decon contractors with hazardous materials training and liability insurance. All work must be carefully coordinated through Intel's Project Manager, Construction EHS or Site EHS personnel.

- 2.5.3. All persons involved in projects which involve de-installation and decontamination of tools and facilities that contain hazardous energies (referred to as 6D) are required to be trained in the sites 6D requirements or equivalent before they may conduct any de-install activities. These persons include Environmental Health and Safety, Tool Owners, Technicians, Construction / Project Coordinators, Craft Contractors, General Site Services, Facility Owners (e.g., Air Products, FST).

2.5.4. Contractor Roles and Responsibilities

- a. Obtain all permits to perform deinstall activities
- b. Attend required training classes
- c. Follow IQ QA/QC or equivalent procedures
- d. Complete line breaks in accordance with Intel's line break procedures (procedures are available from site construction EHS)
- e. Complete Safe Plan of Actions (SPA) or Pre-task Plan (PTP) for work
- f. Confirm Chemical Use Decontamination Labels (CUDL) and Decontamination Safety Level 2 (DSL2) are complete before commencing any de-install or decon work
- g. Follow all EHS procedures and requirements (check with your Intel CEHS)
- h. Comply with site disposal requirements for contaminated pipework/duct/equipment
- i. Complete an EHS PPE assessment to identify the required PPE for the handling and disposal of materials/pipework and equipment
- j. Decontamination of pipework must take place in Intel approved locations and waste disposal must be in accordance with site policy.

SECTION 2.6: DOCK SAFETY

- 2.6.1. Supervisors are responsible for ensuring that workers under their supervision only operate devices that they have been properly trained and authorized on.

- 2.6.2. Supervisors are responsible for implementing and maintaining a dock safety audit program. Audits are to be conducted as a minimum on a monthly basis.

2.6.3. Workers are responsible for:

- a. Working in a safe manner and adhering to all safety rules
- b. Wearing the appropriate personal protective equipment
- c. Completing all required safety training in the prescribed time
- d. Participate in the dock safety audit program.

2.6.4. Loading/Unloading Trucks

- a. If the dock is not enclosed, a chain or other barricade must extend the open area of the dock.
- b. Stay alert at all times and assure that there is an adequate operating area outside of the truck to permit working clear of other dock personnel or other activities.
- c. Prior to loading/unloading a truck, let the driver know when you are going to start the job and when you complete the job.
- d. Direct truck driver to the waiting area while loading/unloading truck.
- e. During the loading/unloading process have the ignition turned off to prevent exhaust odors from migrating into the building.
- f. Verify that the vehicle is restrained with a wheel chock or with an automated vehicle restraint.
- g. Wear safety toed shoes, gloves and eye protection.
- h. If a driver leaves the trailer to be loaded/unloaded ensure that it is properly stabilized.
- i. Inspect the truck floor for safety hazards such as holes or broken boards.
- j. Use provided lighting when inspecting, loading and unloading trucks.
- k. Ensure shipment and support pallets are stable and not oversized.
- l. Do not handle hazardous chemicals unless you are authorized and qualified.
- m. Use proper lifting techniques when moving materials.
- n. Operate equipment only if you are trained and licensed to do so.
- o. Use pallet jacks, lift trucks and other mechanical means to move loads, only after trained and authorized.
- p. Carry loads as low as possible and watch for clearance.
- q. Keep dock gateways clear. Don't block areas where pallet jacks need to move.
- r. Never block exit ways, emergency equipment or electrical panels.
- s. Never jump from the dock into the dock pit. Use stairs or authorized means of access/egress.
- t. Keep off collapsible and stationary roller beds.
- u. Fall protection must be used where required when unloading from trucks.

2.6.5. Truck Inspection

- a. Do not load or unload a truck that poses a safety hazard.
- b. Inspect the floor of the truck for debris that may pose a tripping hazard.
- c. If the floor of the truck is wood, look for rot or loose planks. If metal, look for rust or dips.
- d. Before loading a truck find out what the truck's weight capacity is and inform the driver if the load is going to exceed that capacity.

- e. Make sure that the loads are adequately secured.
- 2.6.6. Dock Locks (where available)
- a. Make sure the driver is aware of signal lights on the dock (if provided).
 - b. When the restraint is engaged, the driver will see a red light and you will see a green light.
 - c. A loud horn will sound if the hook is not secure on the truck. Do not load or unload until the hook is secure.
 - d. When the restraint is disengaged the driver will see a green light and you will see a red light. Failure to have the restraint fully disengaged could result in damage to the truck or trailer.
- 2.6.7. Wheel Chocks
- a. Ensure that the truck/trailer is chocked. Wedge the tapered end of a chock in front of at least one of the rear tires (curved side of chock snug against the tire).
 - b. Make sure the chock is firmly placed and stable. If chocks have chains attached, make sure the chains are not beneath the chock.
 - c. Ensure that the chock has been removed before the driver attempts to pull away.
- 2.6.8. Pallets
- a. Do not use if damaged or broken.
 - b. Do not walk on pallets.
 - c. Band or stretch-wrap pallet loads before loading them onto trucks and when storing loaded pallets on overhead racks or shelves.
 - d. When storing pallets lay them flat and do not stack more than nine high. They may be stacked eleven pallets high if there are two individuals to do the "lift".
 - e. Store pallets neatly, maintaining a clear pathway.
 - f. Leather gloves must be worn when handling pallets.
 - g. Never double-stack loaded pallets without supervisor's authorization.
 - h. Always wear safety glasses and hand protection while cutting the banding on pallets.
- 2.6.9. Housekeeping
- a. Never block any aisles or exits.
 - b. Do not block electrical panels or fire extinguishers.
 - c. Keep aisles free of trip / slip hazards. Ensure that any spills are properly cleaned up and contact Intel Security so that they can activate the ERT (as necessary).
 - d. Put all trash in the appropriate waste container.
 - e. Put tools and other items away when you're through with them.
 - f. Keep the tops of cabinets, workbenches and other working surfaces free of debris.
- 2.6.10. Service Yard/Pad Area
- a. When driving in the service yard obey all traffic signs and be alert to traffic and pedestrians.
 - b. When walking in the service yard stay on designated walkways and be alert for traffic.
 - c. No smoking in the service yard or on the dock.

- d. Park only in designated areas.
- e. Wear the proper personal protective equipment while in the service yard/pad area.
- f. Report any pavement deficiencies (i.e. potholes) or lighting that is not working.

2.6.11. If you are unsure about loading or unloading freight, ask for help.

SECTION 2.7: ENERGIZED ELECTRICAL WORK (EEW) AND ELECTRICAL SAFETY

2.7.1. Intel's Corporate Environmental Health and Safety (EHS) Energized Electric Work (EEW) Standard is available at <http://ehs.intel.com/compliance/programs.htm#safety> or from the site construction EHS manager.

2.7.2. General Electrical Safety:

- a. Site electrical permitting requirements must be followed.
- b. Temporary power cords must be protected from damage. Those run overhead will be adequately secured (with a non-conductive means) at least 7 feet from floor level. No temporary cords will be draped over equipment or left where potentially walked, driven upon, or pinched between doors.
- c. Cords used on construction sites must be of an extra hard use type.
- d. No use of metal keyhole saws to penetrate sheet rock walls for electrical installations.
- e. Metal fish tape will not be used for pulling wire into energized panels or where the potential exists for contact with energized components.
- f. Non-metallic pulling socks will be used when pulling wire into energized panels or where the potential exists for contacting energized components.
- g. Heavy equipment will not be operated in close proximity to overhead lines.
- h. Equipment arc flash requirements must be complied with.
- i. Portable electrical equipment must be inspected as per legal requirements.

2.7.3. Work in Hazardous Locations:

- a. Work on equipment that is rated for use in hazardous locations that will violate the classified location rating is not permitted. For example, work which requires the opening of explosion proof enclosures in a classified location must be performed in a de-energized, locked and tagged out state.
- b. If there is a potential for combustible vapors in a work area a test of the area must be performed with a combustible gas meter prior to and during the duration of any EEW. Work must be halted immediately if any combustible gas or vapor is detected.

Section 2.8: Elevators

- 2.8.1. Personnel will not ride freight elevators and freight will not be transported on personnel elevators.
- 2.8.2. Check the load rating of the elevator before placing freight aboard. Occupant loading or capacity ratings of elevators will not be exceeded.
- 2.8.3. Elevators will not be used during a fire or other emergency.
- 2.8.4. Elevators must not be stopped between floors. Should an elevator fail between floors, activate the elevator alarm or use the emergency phone to request help.
- 2.8.5. Do not attempt to board an elevator once the doors begin to close.

- 2.8.6. The transportation of cryogen dewars within an elevator with personnel present in the elevator at the same time is prohibited.
- 2.8.7. Cryogen dewars will be secured to prevent movement during elevator transport.

SECTION 2.9: FALL PROTECTION

- 2.9.1. Equipment and systems will be designed and implemented based on the project safety plan to ensure that fall protection is provided and used. Elements of the project safety plan will include methods to ensure appropriate anchorages are provided throughout the construction site. Work with fall exposures that exceed 6 feet requires a fall protection safety plan designed specifically for that site.
- 2.9.2. All workers on Intel premises must use 100% fall protection such as life lines and railings when working within 6 feet of open-sided roofs, ledges, catwalks or when parapets are less than 42 inches high. Workers must be tied off 100% of the time when exposed to a fall, which may require a double lanyard system.
- 2.9.3. All open holes or leading edges on roofs, floors etc., where a fall hazard of 6 feet or greater exists, must be protected using fall protection, safety netting or standard guardrails. If the use of fall protection, safety netting or standard guardrails is infeasible or adds a greater hazard to employees an approved alternate fall protection plan must be developed. The alternate fall protection plan must be approved by the Intel Construction EHS manager.
- 2.9.4. Approved full-body harnesses (no belts) will be worn when exposed to a fall of 6 feet or greater.
- 2.9.5. Daisy chaining of fall protection devices is prohibited.
- 2.9.6. The use of 100% fall protection systems and equipment is mandatory. Any worker found in violation of fall protection requirements is subject to removal from the site.
- 2.9.7. If and when a static line system is utilized, documentation will be required to demonstrate the effectiveness of that system.
- 2.9.8. All personnel who might be exposed to fall hazards will be trained and training records will be available at the request of project management. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.
- 2.9.9. Covers for holes in floors, roofs, and other walking/working surfaces shall meet the following requirements:
 - a. Covers located in roadways and vehicular aisles shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover.
 - b. All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time.
 - c. All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees.
 - d. All covers shall be marked with the word "HOLE" or "COVER" and the maximum SWL to provide warning of the hazard. The labeling shall be in English and in the primary language for the country the work is being completed.

Note: This provision does not apply to cast iron manhole covers or steel grates used on streets or roadways.

- e. Any activities performed in the Interstitial areas of our buildings will require a task specific Job Hazard Analysis, accepted by Intel Construction EHS, should the activity require the removal of components while personnel are on the ceiling grid.

SECTION 2.10: FORKLIFTS

- 2.10.1. The Intel Corporate Environmental Health and Safety (EHS) Powered Industrial Trucks (PIT) Standard/Guideline is available at <http://ehs.intel.com/compliance/programs.htm#safety> or from the site construction EHS manager.
- 2.10.2. Contractors shall follow all elements of the Intel PIT standard, however all training and qualifications must be completed by the contractor. Forklift operators will be trained and qualified on the type of equipment they are operating.

SECTION 2.11: GROUND FAULT CIRCUIT INTERRUPTERS (GFCI)/ASSURED GROUNDING

2.11.1. Definitions:

- a. Competent person - one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- b. Temporary Power - Power that is supplied from a designated location such as a facilities panel or skid for the purpose of providing power for the duration of a project(s) that is maintained either by a dedicated contractor or each individual contractor.

2.11.2. Procedures/Expectations:

- a. All 125-volt or greater, single-phase, 15-, 20-, and 30-ampere receptacles on construction sites, that are for temporary power and are available for use, must have approved ground-fault circuit interrupters (GFCI).
- b. GFCI protection must be at the outlet end of the circuit.
- c. Extension cords or other devices with listed GFCI protection for personnel identified for portable use are acceptable.
- d. GFCI's shall be tested before each day's use.
- e. Receptacles more than 125-volt, single-phase, 30-amperes must have protection that complies with above requirements, or an assured equipment grounding conductor program.
- f. Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day's use for external defects (e.g., deformed or missing pins or insulation damage) and for indications of possible internal damage. Equipment found damaged or defective shall be removed from service and not be used until repaired.

2.11.3. Assured equipment grounding conductor program. When required, the Contractor shall establish and implement a program covering all cord sets, receptacles which are not a part of the building or structure, and equipment connected by cord and plug which are available for use or used by Contractor employees for construction related activities. This program must include the following minimum requirements:

- a. A written description of the program, including the specific procedures adopted by the Contractor, shall be available at the jobsite for inspection.

- b. The Contractor shall designate one or more competent persons to implement the program.
 - c. The following tests shall be performed quarterly on all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and cord- and plug-connected equipment required to be grounded. Fixed extension cords, other devices and receptacles not exposed to damage shall be inspected at least every 6 months.
 - i. All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.
 - ii. Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.
 - d. All required tests shall be performed before first use, before equipment is returned to service following any repairs, before equipment is used after any incident which can be reasonably suspected to have caused damage (e.g., when a cord set is run over), and at intervals not to exceed 3 months.
 - e. The contractor shall not permit the use of any equipment which has not met the requirements of this program.
 - f. All cords and equipment must be labeled with contractor company name.
 - g. Tests shall be recorded. These records shall identify each receptacle, cord set, and cord- and plug-connected equipment that passed the test and shall indicate the last date it was tested or the interval for which it was tested. This record shall be kept by means of logs and color coding, and shall be maintained until replaced by a more current record. The record shall be made available on the jobsite for inspection.
- 2.11.4. Contractor shall follow all OSHA/NEC and Intel guidelines for temporary power installations and repairs where applicable or necessary.
- 2.11.5. A grounding terminal or grounding-type device on a receptacle, cord connector, or attachment plug shall not be used for purposes other than grounding.
- 2.11.6. Assured Equipment Grounding Log: The method of acceptable record keeping is to establish a color code for marking cord sets and cord- and plug-connected equipment.
- a. Colored plastic or vinyl electrical tape shall be placed on both ends of cords and cord- and plug-connected equipment to denote the quarter that the tests were performed.
 - b. These tests shall be completed by the first day of each month listed below (**Table 2**).

Table 2. Timing and color code for denoting quarterly tests performed on cords and cord- and plug-connected equipment.

Month #	Month	Color Code
1	January	White
4	April	Green
7	July	Red
10	October	Orange

SECTION 2.12: HAZARDOUS ENERGIES

The Intel Corporate Environmental Health and Safety (EHS) Control of Hazardous Energy (CoHE) standard is available at <http://ehs.intel.com/compliance/programs.htm#safety> or from the site construction EHS manager.

- 2.12.1. Contractor shall define scope of work and all possible sources of stored energy per **Appendix B: Energy Control Procedure Template**.
- 2.12.2. A lock and tag **with name and contact details** are required for each worker at all points of stored energy. (Photo tags are not mandatory for trade personnel).
- 2.12.3. Use only site approved CoHE locks and tags; CoHE locks must be single key.
- 2.12.4. Personnel applying LOTO must be CoHE trained and complete recertification as required locally.
- 2.12.5. Each lock shall have only one key and it must be controlled by the individual performing the work (key on their person).
- 2.12.6. In coordination with an Intel representative, verify that isolation and de-energization has been accomplished by attempting to operate the equipment or system and verifying with appropriate diagnostic equipment. Electrical Energized Work (EEW) procedures must be employed until work area has been tested and proven to be de-energized.
- 2.12.7. Each person working on the equipment or system must secure each energy-isolating device with a lock and tag or place an individual lock and tag on a lock box.
- 2.12.8. Prior to startup, check the equipment or system to ensure it is in safe operating condition with all guards, etc. in position.
- 2.12.9. Notify all affected workers and Intel representatives (if appropriate) that lockout/tag out is being removed.
- 2.12.10. In coordination with Intel representatives, restore power source and verify safe operating conditions.
- 2.12.11. Contractors shall adhere to the site policy for abandoned lock removal (see **Appendix C: Abandoned Lock Removal Form**). This policy must, at a minimum, ensure an attempt is made to reach the employee who attached the lock. If the employee cannot be reached, verification must be made that the employee who applied the lock is not at the facility. This must include a walkthrough of the equipment affected by the lockout, and the employee must be notified of the lock removal prior to resuming work.

SECTION 2.13: HOUSEKEEPING

General contractors / Integrators must document a housekeeping plan as part of their EHS Plan/CPEP.

- 2.13.1. The plan should cover the following:
 - a. Plan for day to day clean up
 - b. Waste removal
 - c. Material management
 - d. Laydown plan
 - e. Area Inspections/audits

- 2.13.2. The plan must ensure that:
- a. Work areas are keep clean and free from trip hazards, spills and clutter.
 - b. Access aisles and emergency equipment are available at all times.
 - c. Electrical cords and cables are kept out of walking space.
 - d. Lighting levels are sufficient.
 - e. Material storage does not pose a safety risk (unsecured/loose).
 - f. Site protocol requirements are met (point of use vacuum where required).
 - g. Appropriate barriers and signage for laydown areas.
 - h. Waste plan to ensure separation/recycling and regular removal.

SECTION 2.14: IMPALEMENT PREVENTION

- 2.14.1. Consider impalement hazards when pre-task planning.
- 2.14.2. When possible, plan the project so that elevated work will be conducted prior to creating impalement hazards (e.g., vertical projections from lower levels). Space limited and high activity tasks are also best conducted prior to creating impalement hazards.
- 2.14.3. Remove or eliminate (e.g., cut off) impalement hazards. When it cannot be done, guard the hazard. Horizontal and vertical projections can often be protected with approved re-bar caps.
- 2.14.4. Store thin diameter piping and other impalement hazards so that the ends do not project into walkways and work areas.
- 2.14.5. Flag the ends of thin diameter piping and other impalement hazards when moving it within the work area.

SECTION 2.15: LADDERS AND SCAFFOLDS

- 2.15.1. Ladders:
- a. Anytime a worker is working and is exposed to a fall hazard over 6 vertical feet, as measured from the sole of their shoe, personal fall protection will be used.
EU: Where Work At Height (WAH) risk assessment dictates.
 - b. Exception:
 - i. Maintains at least three points of contact with the ladder at all times
 - ii. Maintains center of body between the ladder's vertical supports
 - iii. Co-worker supports the ladder or it is secured from movement
 - iv. Faces the front of the ladder.
- 2.15.2. General Portable Ladder Requirements:
- a. Ladders must not be placed in front of doors opening toward the ladder unless door is blocked, open, locked and posted or guarded.
 - b. Ladders shall be capable of supporting the following loads without failure:
 - i. Each self-supporting portable ladder: At least four times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load.
 - c. Only one person on ladder at a time.
 - d. Only fiberglass ladders are allowed. No wood or metal ladders (unless Intel EHS exception is approved).
 - e. Metal ladders are approved for scaffold access.

- f. When storing, ladders must be laid on their side or secured with a chain, cable or approved storage device when stored upright.
- g. Manufacturer's information must be on the side of the ladder.
- h. Ladders must be inspected in accordance with local legal requirements.
- i. Carry tools or equipment in tool belts or bags, handed up or down to different levels or lifted by a mechanical hoist.

2.15.3. Scaffolds

- a. Each scaffold and scaffold component shall be capable of supporting, without failure, its own weight and at least 4 times the maximum intended load applied or transmitted to it (6 times for suspension scaffolding).
- b. All scaffolds/work access platforms must be installed and certified by qualified persons.
- c. Before starting work on a scaffold, inspect visually to determine that:
 - i. Handrails, mid-rails, toe-boards and decking are in place.
 - ii. All wheels are locked on movable scaffolds.
 - iii. Locking pins are in place at each joint.
- d. Do not change or remove scaffold members unless authorized.
- e. No one is allowed to ride on a rolling scaffold when it is being moved unless approved by EHS. Remove or secure all tools and material on the deck before moving.
- f. Guard rails, including top and mid rails, and toe-boards must be installed on all open sides and on ends of scaffolds and platforms more than 6 feet above the ground or lower surface.
- g. Do not climb on, or work from, any scaffold, handrail, mid-rail, or brace member unless the scaffold has been designed by the manufacturer for this purpose. Otherwise use a ladder to access and egress the scaffold.
- h. All scaffolds must be erected level and plumb, on a firm base and kept clear of debris.
- i. Scaffolds must be tied off or stabilized with outriggers when the height is more than three times the smaller base dimension. Scaffolds must also be tied off horizontally every 30 feet. Please contact a qualified individual for additional questions and details regarding acceptable tie offs.
- j. Access ladder or equivalent means of safe access must be provided on all elevated work platforms.
- k. When space permits, all scaffold platforms must be equipped with standard 42-inch high handrails rigidly secured (not wired), standard 21-inch high mid-rails, completely decked with safety plank or manufactured scaffold decking, and rigidly secured toe-boards, all four sides.
- l. Adjusting or leveling screws shall not be used on scaffolds equipped with wheels.
- m. The safe working should be marked on the scaffold.
- n. Do not alter any scaffold member by welding, burning, cutting, drilling or bending.
- o. Do not rig from scaffold handrails, mid-rails, or braces.
- p. Patented Metal Scaffolding: Generally, parts and sections of scaffolding made by one manufacturer are not to be used with another manufacturer's.
- q. Personnel must wear safety harnesses and be properly tied off on any scaffold platform over 4 feet where it is not possible to install standard handrails, mid rails, or completely deck the platform.
- r. A tagging system will be used to communicate the status of the scaffold.

- s. Tag to be located at access ladder.
- t. Rolling scaffolds will be used only on level, smooth surfaces, or the wheels must be contained in wooden or channel iron runners. Watch for overhead clearance when moving. Casters must be pinned and locked.

2.15.4. Suspended Scaffolding

- a. Swinging stages, toothpicks, boatswain chairs, float, and needle beams require special approval prior to use.
- b. Attach and secure safety harness before stepping on these scaffolds and do not remove until clear of the scaffold. Tie off to independent lifeline or building structure. One lifeline per person.

2.15.5. Decking

- a. Planks of two-inch scaffold grade lumber or laminated wood. Store on dunnage separately from ordinary lumber.
- b. Manufactured aluminum decking is for scaffolds only.

SECTION 2.16: LIGHTING

2.16.1. Light can be provided by permanent, temporary, or spot source. The minimum illumination intensities in foot-candles will be as follows (**Table 3**).

Table 3. Minimum illumination intensities in foot-candles based on location.

AREA	FOOT-CANDLES
General Construction Area Lighting	5
General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas.	3
Indoor: warehouses, corridors, hallways, and exit ways	5
General construction plant and shops (e.g., sub-fab, fan attic, fab level, batch plants, mechanical and electrical equipment rooms, carpenter shops, store rooms, and indoor toilets and workrooms, break and lunch rooms).	10
First aid stations and offices	30

2.16.2. Temporary lighting cables shall be securely installed up out of work zones by a non-conductive methods.

2.16.3. Contractor shall ensure that provision shall be made for emergency lighting as part of the evac plan.

2.16.4. All lighting used in areas with a hazardous classification must be appropriately rated.

2.16.5. Light fittings must be maintained (broken bulbs/lenses replaced).

SECTION 2.17: USE OF CRYOGENS IN CONSTRUCTION

2.17.1. The following is required for all dewar fill operations:

- a. Written procedures or specifications outlining equipment, standard operating guidelines, hazards and emergency procedures shall be developed and maintained.
- b. Certification of employees shall be based on a written job spec/procedure, and appropriate hazcom, inert gas/cryogen hazard awareness and handling training.
- c. Personal protective equipment (PPE) for filling operations that are designed to protect skin surfaces from cryogenic liquids, including face, hands and feet, shall be worn (e.g., face shield, goggles, apron and gloves).
- d. Inspect all PPE before and after use.
- e. Use of Fill Station equipment shall be strictly limited to certified and authorized personnel.
- f. Procedures shall be documented, posted and available for all users at filling locations.
- g. Equipment maintenance procedures, including those for dewars and fill stations, shall meet or exceed manufacturers' specifications and shall be documented.
- h. Dewars shall be transported using appropriate carts and secured to prevent accidental tipping. Exception: small hand-carried dewars.
- i. Connections and valves on fill stations and dewars shall be clearly labeled in accordance with the Intel Pipe, Tube, and Duct Labeling Standard in the Master Design Specs. There should also be hazard warning labels that indicate the chemicals asphyxiant and cryogenic properties.
- j. Fill stations and dewars shall be clearly labeled indicating contents and their associated hazards.

2.17.2. Storage/use requirements for construction cryogenics or liquefied gasses (e.g., argon or nitrogen dewars):

- a. If the dewar is being left in an area unsupervised (e.g., overnight or while workers are not on-site), it must be stored outside, or in a large open area with mechanical HVAC system air supplied (e.g., subfab open area)
- b. If the dewar is being used in a supervised area, it must have mechanical HVAC ventilation present or doors and available windows must be secured open.
- c. Never store a construction dewar in a small area with closed doors (or not fully open doors) and no HVAC air supply.
- d. All construction dewars must be labeled with the name, company and phone number of the dewar owner and verbiage stating that if the dewar continuously vents in an indoor space for longer than 3 minutes, occupants should leave the dewar area and call the site emergency number. Continuous venting could result in oxygen deficiency.
- e. All dewars must be used and stored in the upright position, and must be secured to prevent movement in an earthquake/seismic event and during elevator transport.
- f. Contact Intel EHS If you do not/cannot meet this criteria or are unsure/unaware of available ventilation.
- g. Exclusions
 - i. Compressed gas cylinders
 - ii. Non-Intel occupied spaces

- h. Emergency procedures:
 - i. If a dewar vents in an indoor space for longer than 3 minutes, evacuate the area and notify site emergency personnel.
 - ii. Any spill of liquefied gas or cryogen requires evacuation of the area and notification to site emergency personnel.
- 2.17.3. Requirements for indoor Cryogen/Inert usage: (e.g., Argon purging, LN2 pipe freezing):
 - a. Limit the quantity of cryogen being used to the lowest practical amount.
 - b. Conduct an Oxygen Deficiency Assessment to determine if an inert atmosphere is possible and if additional controls are required.
 - c. If an O₂ deficient atmosphere is possible or an assessment cannot be completed then additional controls must be introduced (e.g., oxygen monitoring).
 - d. The transportation of cryogen dewars within an elevator with personnel present in the elevator at the same time is prohibited.
- 2.17.4. Construction Inert gas purging. Inert gas purging into an area could potentially displace oxygen and generate an oxygen deficient environment. One of the following controls must be in place prior to gas purging:
 - a. The purge gas should be vented to an external outdoor location ensuring that the vented inert gas cannot ingress into process air intakes, buildings and/or air conditioning/ventilation systems and that there are no trenches or low points present at the outdoor discharge point where an inert gas could accumulate. Avoid discharging purge gases into enclosed/walled areas where there is poor air mixing.
 - b. If the gas has to be discharged internal to the building, an inert gas assessment must be completed, prior to work commencing, with the site industrial hygienist to determine if the release of the gas into the space will result in an inert environment and if additional controls are required to be implemented. The inert gas assessment will take into account the gas type, inert flow rate, room size and HVAC flow rate.
 - c. The purge gas should be purged directly into an operational exhaust system (system owner approval required).
 - d. In situations where purging activities are constant and prolonged (e.g., tool install), in addition to an inert gas assessment, it may be deemed necessary to install temporary oxygen monitoring in building low points (e.g., trenches).
- 2.17.5. Oxygen monitors used as controls for potential oxygen depletion must be approved by EHS, calibrated, tagged, and locally alarmed with response procedures in place.

SECTION 2.18: MOBILE ELEVATED WORK PLATFORMS (MEWP)

- 2.18.1. The Intel Corporate Environmental Health and Safety (EHS) Mobile Elevated Work Platform (MEWP) Standard is available at <http://ehs.intel.com/compliance/programs.htm#safety> or from the site construction EHS manager.
- 2.18.2. Spotter Requirements :
 - a. Spotters are required for all vertical and horizontal movements.
 - b. Spotters must have direct communication with the operator during any movement.
 - c. When it is not possible for the spotter to see obstructions, an alternative plan to ensure zero incidents must be created.
 - d. Must be in line of sight and in visual contact with the operator.
 - e. Spotters must be trained on MEWP emergency procedures and on their roles and responsibilities.

- 2.18.3. All MEWP's shall be inspected on arrival to the site and prior to each use. Documentation shall be affixed to the MEWP.

SECTION 2.19: CARS, PICKUPS, TRUCKS, INDUSTRIAL VEHICLES, GOLF CARTS, ALL OTHER POWERED VEHICLES

- 2.19.1. The operator must possess a valid driver's license.
- 2.19.2. The following requirements apply to all golf carts and/or similar style vehicles in use at Intel property(s):
- a. All golf carts shall be equipped with reflectors, headlights and an orange safety flag (off road vehicle marker). The flag will be mounted on a 6-foot rod, at a minimum.
 - b. In vehicles without turn signals, hand signals shall be used to relay turns.
 - c. Vehicles should have a horn and/or warning device.
 - d. All vehicles will utilize one of the following when backing up: a back-up alarm, a horn or a spotter.
 - e. Operators will obey all speed limit requirements and only be used on roadways.
 - f. Seatbelts are required to be used if provided by the vehicle manufacturer.
 - g. Company name and unique I.D. (number or name on cart) shall be displayed on all golf carts.
- 2.19.3. Wheels shall be chocked using approved restraining devices when vehicle is being loaded or unloaded using a powered industrial truck or manual material handling equipment.
- 2.19.4. All vehicles shall be operated in accordance with the manufacturer's recommendation, which includes vehicle occupancy, that is, each person shall have a seat.
- 2.19.5. Vehicles shall not be modified in any manner that affects the recommended mode of operation, speed, or safety of the vehicle.
- 2.19.6. All vehicles shall be regularly inspected for maintenance and kept in good working order according to manufacturer's recommendation.
- 2.19.7. Personnel are not allowed to smoke while operating vehicles. Smoking is allowed only in designated areas/smoking shelters.
- 2.19.8. Charging station for battery powered vehicles must be established per site EHS requirements.
- 2.19.9. Pedestrians have the right of way. Drivers must yield to pedestrian traffic.
- 2.19.10. Seat belts are to be provided in vehicles designed to transport personnel. All are required to wear seat belts.
- 2.19.11. Obey all speed limit and regulatory signs.
- 2.19.12. Shut off engine to fuel and use secondary containment pan while fueling to prevent spills to environment.
- 2.19.13. Personnel must not ride in the bed of any vehicle at any time.
- 2.19.14. Engines will be shut off and parking brakes set in all vehicles left unattended (out of sight or > 20 feet).
- 2.19.15. Vehicles will be pulled to the side of the road and stopped when using a hand held phone or radio.

2.19.16. Secure or cover all loads to prevent movement.

2.19.17. Haulage and earth moving equipment operating on Intel property must be equipped with audible alarms that sound a continuous warning that the vehicle is backing. Alarms must be audible above the surrounding noise levels or the vehicle is only allowed to be backed up when a spotter signals it's safe to do so.

SECTION 2:20: OVERHEAD WORK

2.20.1. General Requirements

- a. A Stop the Drop Work Program shall be developed by the contractor to ensure zero risk with dropped objects.
- b. Employees shall be trained in falling object prevention.
 - i. As a minimum, training must consist of an initial new hire training and an annual refresh training.
 - ii. Add falling object prevention refresh to regular toolbox talk rotation.
- c. Utilize pre-task planning (PTP) for daily risk and/or hazard mitigation.
- d. Always follow proper rigging procedures.
- e. Site barrier policy to be complied with.
- f. Remove all tools and unused materials from elevated work areas as soon a job is complete.
- g. A post job walk shall be performed to ensure all tools and materials are removed from heights.
- h. Contractors will be subject to audits by Intel to assess performance against program requirements.

2.20.2. Hand / Power Tools and Material use at Height:

- a. All unnecessary tools / materials shall be left at ground level.
- b. All hand and power tools must be positively secured (tether or equivalent) whenever they can fall eight feet or more, including:
 - i. Unprotected holes, edges, or guardrails
 - ii. Within the confines of a mobile elevated work platform
Personnel are allowed to remove tools from containers/holders in order to tether.
 - iii. When working from ladders.
- c. If hand tool / power tools cannot be tethered and materials cannot be secured a risk assessment must be completed and mitigation measures agreed with EHS (mitigation may include bullet proofing, exclusion zones, etc.).

SECTION 2.21: PERSONAL PROTECTIVE EQUIPMENT

2.21.1. Contractors and their workers must come to an Intel site with PPE as required to safely perform their work. At a minimum, all workers must be supplied by their employer (Contractor) with an approved hard-hat, appropriate work gloves, and approved safety glasses, high visibility clothing and sturdy work boots.

2.21.2. Standard attire for all contractor personnel:

- a. Shirt with 4" (10 cm) sleeves at a minimum
- b. Pants, trousers, or coveralls
- c. Sturdy work boots with over the ankle support.

2.21.3. All contractors must ensure that their workers have received training on the proper use, inspection, storage and care for all PPE as required for their work. As with all training, proof of training will be maintained and made available to Intel upon request.

2.21.4. Head Protection

- a. Employees working in areas where there is a possible danger of head injury from impact, or from falling or flying objects, or from electrical shock and burns, shall be protected by protective helmets.
- b. Hardhats are to be worn in all construction areas unless otherwise communicated or posted. No class C or metallic hardhats are allowed on Intel sites.
- c. If face protection (face shields) is required to be worn in addition to head protection, face shields must be provided that can be worn with the worker's hardhat.
- d. Objects will not be placed or stored between the hardhat shell and suspension.
- e. Baseball type hats with the button on top will not be worn under a hardhat.

2.21.5. Eye and Face

- a. Prior to work in any area with potential exposure to hazardous materials/chemicals, the nearest eyewash will be identified and communicated to all.
- b. All contractors and their workers must wear approved eye protection at all times on Intel sites unless otherwise communicated or posted.
- c. Special eye hazard work areas (such as welding, torch work, etc.) will be identified in pre-task plans and appropriate eye protection provided.
- d. Face shields / goggles will be worn if the potential for fine particles or chemical hazards exists. Goggles will also be worn for overhead protection from particles/dust.
- e. Safety glasses must not have a greater than 50% tint level inside of buildings. Eyes must be visible through tinted glasses inside. Tinted or shaded safety glasses are acceptable outdoors during the daylight hours.
- f. Visitors to the site that do not have approved eyewear must be provided approved goggles or glasses.
- g. ANSI / CE approved eyewear will be worn over prescription glasses for access to site work areas until permanent protective eyewear can be obtained.
- h. Face shields must be worn when grinding, performing abrasive cutting and handling acids or molten materials.

2.21.6. Body

- a. Where chemical hazards (corrosives, etc.) are present, appropriate protection will be provided. The protection provided must be chosen to be resistant to the hazards and chemical properties as presented by the work. Reusable clothing must be decontaminated prior to storage.
- b. For hazard specific protection, such as for protection for electrical hazards, refer to the appropriate procedure as provided in this manual.
- c. When welding, all personnel must be suitably protected from burns.

2.21.7. Hand

- a. General work gloves with at least an ANSI Level III or equivalent safety rating for cut resistances should be worn at all times when performing construction activities.
- b. Cut resistant under liners must be worn under latex gloves in the clean room environments where cutting/laceration risks exist. *Clean Room Protocol must be contacted* to review glove selection for work performed within the clean room.

- c. With specific hazards require, a glove assessment should be performed that adequately mitigates the risk of injury or chemical exposure.

2.21.8. Legs, Thighs, Knees, Shins, and Ankles

- a. Overalls or pants must not have loose, torn or dragging fabric.
- b. Pointed tools will not be carried in pockets. A canvas or leather tool sheath hung from the belt is acceptable--Remember: All Points Down.
- c. Shorts are not allowed in construction areas.

2.21.9. Feet and Toes

- a. All personnel must wear sturdy, non-porous work boots with over the ankle support while performing construction activities
- b. All personnel conducting tamping and air hammering processes will wear metatarsal and safety-toed guards.
- c. The use of safety-toed (safety shoes/boots) and/or metatarsal guards will be defined in the project plan or PTP.

2.21.10. Hearing

- a. Contractor must ensure that any worker exposed to 85 dBA (eight-hour TWA) will be enrolled in a Hearing Conservation Program.

2.21.11. Respiratory Protection

- a. A respirator shall be provided to each employee by their employer when such equipment is necessary to protect the health of such employee. The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program.
- b. Each Contractor company is responsible for design and implementation of a Respiratory Protection program when its employees will be using respirators. Elements of the program should include risk/hazard analysis, selection of appropriate respirators, medical evaluation of respirator wearers, training and fit testing. Training records shall be made available at the request of Intel project management.
- c. The Contractor is responsible for determining when and where respiratory protection is required to address hazards that are generated as a result of Contractor activity on either new construction or sustaining contractor projects.
- d. If Respiratory Protection is required as a result of hazards presented by Intel Operations the Contractor will work with Intel EHS to identify the appropriate respiratory protective equipment.
- e. All respiratory protection equipment used on Intel sites shall be NIOSH or equivalent international standard approved.
- f. Respirators shall not be shared. Each employee requiring protection shall be issued equipment unless the Contractor has a formal cleaning/disinfecting program in place.
- g. Anyone wearing a respirator shall be clean-shaven to ensure a secure face/respirator seal.

SECTION 2.22: POWDER ACTUATED TOOLS

- 2.22.1. All Intel contractors are required to follow the OSHA or any other country specific law and regulations related to powder actuated tools.
- 2.22.2. All powder-activated tools must be approved by Intel/GC/CM prior to use on Intel property. Powder activated tools are prohibited in Intel occupied buildings. Approval may be given on a case-by-case basis by project management.
- 2.22.3. Workers must be trained and certified to operate a powder actuated tool.
- 2.22.4. Tools will not be used in an explosive or flammable atmosphere.
- 2.22.5. The tool must be inspected each day before loading to insure that all safety devices are in good working condition.
- 2.22.6. Tools will not be loaded until just prior to the intended firing time. Loaded tools will not be left unattended. Firing of the tool shall be by at least two separate and distinct actions (dual activation).
- 2.22.7. When firing into a concrete surface, the depth must be a minimum of 3 times greater than the length of the fastener.
- 2.22.8. Precautions shall be taken to ensure that the affected area is sufficiently barricaded off with danger tape and employees are aware of the activity. A clear perimeter should be designated based on manufacturer's recommendations.
- 2.22.9. Sufficient notification shall be given to building occupants to inform them of any potential noise or pedestrian traffic diversions caused by the work.
- 2.22.10. Sufficient personal protective equipment shall be worn including required eye protection, face shields, hearing protection and hand protection. Check the manufacturer's recommendations for guidance. At a minimum face shield, eye protection and hearing protection should be utilized.
- 2.22.11. Misfired cartridges must be segregated from fired cartridges and disposed of per manufacturer's recommendations.
- 2.22.12. Fired cartridges will be disposed of properly and not allowed to accumulate on the floor or in the work area.
- 2.22.13. Tools will not be greater than .22 caliber.

SECTION 2.23: POWERED EQUIPMENT AND HAND TOOLS

- 2.23.1. All tools and equipment will be maintained in good working condition and have current certificates as required by law.
- 2.23.2. Contractor equipment will be inspected prior to use. Formal, documented inspections of all tools are required on a routine basis. Copies of inspections must be made available to Intel when requested.
- 2.23.3. Any tool or equipment that is found not to be in safe working condition must be immediately removed from service.
- 2.23.4. Workers shall determine and use the right tool for the activity and use only those tools that they have been trained to use.
- 2.23.5. Tools and equipment must be disconnected whenever the equipment is involved in maintenance, even to change a blade on a saw. If this is not possible then lock-out / tag-out procedure must be put into effect.

- 2.23.6. Make sure impact/work surfaces of tools are properly maintained.
- 2.23.7. All portable electrically powered tools need to be grounded or double insulated with Grand Fault Circuit Interrupter (GFCI) protection to prevent electrical shock.
- 2.23.8. GFCI program will be in place for all construction power use.
- 2.23.9. Insulated tools are required to be non-conductive for electrical work or where the potential for contact with live electrical components exists.
- 2.23.10. Multiple Outlet devices (Powerstrip) / Extension cords:
 - a. All multiple outlet devices and extension cords must be properly grounded when connected to a power source. Multiple outlet devices must be rated for at least 20 amps and have GFCI.
 - b. Extension cords shall be rated for the maximum anticipated electrical load.
 - c. Multiple outlet devices must only be used at the terminus of the cord. The use of multiple outlet devices for the purpose of daisy chaining (the practice of connecting multiple extension cords to multiple outlet devices) extension cords is not allowed.
- 2.23.11. Pocket knife / Leatherman / Utility knife shall not be used for stripping wire. All utility knives shall require an auto retracting blade unless an alternate is approved by Intel EHS.
- 2.23.12. Multipurpose tools (e.g., Leathermen™) shall not be used on Intel projects.
- 2.23.13. Guards and safety switches will be used when equipment is in operation.
- 2.23.14. Grinding disks and wheels will be checked to verify they are correct for the grinder and speed being used.
- 2.23.15. All fuel powered tools shall be stopped while being refueled, serviced, or maintained. Secondary containment of equipment is required during refueling operations.
- 2.23.16. Make sure the tool handle is properly maintained and free from damage (e.g., not splintered or cracked).
- 2.23.17. Impact tools such as chisels, wedges, etc. are not to have mushroomed heads.
- 2.23.18. Reciprocating saw (Sawzall) procedure:
 - a. Remove all material that does not have to be cut in place.
 - b. All systems at risk require protection and approval from owner(s).
 - c. A Sawzall must be the tool of last resort.
 - d. In order to use a Sawzall a “YES” must be answered to the four questions below; answering “NO” to any question requires approval from the EHS team.
 - i. Have you attached a drawing and dimensions of area/material to be cut?
 - ii. Have you fully identified the system to be cut?
 - iii. Have you assessed risk at maximum stroke of blade?
 - iv. Is there full view of the area to be cut?
- 2.23.19. Tube Cutter (also known as Pipe Cutters, Conduit Cutters)
 - a. Restrictions for Use Under Electrical Scope of Work:
 - i. Tube Cutters shall not be used for the installation of conduit.
 - ii. Tube Cutters may be used for conduit demolition but Intel line break procedure must be followed.

- 2.23.20. Facing Tool: A cover/guard type mechanism which prevents contact with the point of operation during cleaning if the power switch were to be activated must be present.
- 2.23.21. Drills, Grinders and other Rotating Power Equipment shall have an attached handle per manufacturer's recommendations.

SECTION 2.24: SAFETY SHOWERS AND EYE WASHES

- 2.24.1. Know the location of the nearest safety shower before starting work.
- 2.24.2. If you have the need to use a safety shower or eye wash, flush with water until help arrives for a minimum of 15 minutes.
- 2.24.3. Safety showers and eye washes are for emergencies only.
- 2.24.4. Do not block the showers and eye washes.
- 2.24.5. Do not dispose of anything down the drains.
- 2.24.6. Report any accidental activation of showers and eye washes to security immediately. If necessary you may use an emergency phone.

SECTION 2.25: TRENCHING AND EXCAVATIONS

- 2.25.1. The Intel Corporate Environmental Health and Safety (EHS) Trenching and excavation standard is available at <http://ehs.intel.com/compliance/programs.htm#safety> or from the site construction EHS manager.
- 2.25.2. Prior to excavation all appropriate site permits must be obtained and task specific instructions followed.
- 2.25.3. All surface encumbrances that are located so as to create a hazard to employees shall be removed or supported, as necessary, to safeguard employees.
- 2.25.4. The estimated location of utility installations, such as sewer, telephone, fuel, electric, water lines, or any other underground installation that reasonably may be expected to be encountered during excavation work, shall be determined prior to opening an excavation and at least 10 feet (3.3 meter) down during the work.
 - a. All utilities will be hand dug within 2 feet (0.6 meter) in all directions next to any suspected lines.
 - b. Hydro/vacuum excavation should be considered in places where no safe excavation practices can be ensured. (Hydro/Vacuum excavation technology provides a non-destructive means to safely locate utilities and complete precision excavation).
- 2.25.5. Structural ramps that are used solely by employees as a means of access or egress from excavations shall be designed by a competent person and structural ramps used for access or egress of equipment shall be designed by a competent person qualified in structural design, and shall be constructed in a way that will meet requirements to satisfy CFR 1926.651 (c) (1) (ii-v), (OSHA Construction Standards).
- 2.25.6. A stairway, ladder, or ramp shall be used as a means of access or egress in trench excavations that are four feet (1.2 meter) or more in depth. The ladder(s), stairways(s), or ramp shall be spaced so that no employee in the trench excavation is more than twenty-five feet (8 meter) from a means of egress. When ladder(s) are employed, the top of the ladder shall extend a minimum of three feet (1 meter) above the ground and be properly secured.
- 2.25.7. When excavations are exposed to vehicular traffic, each employee shall wear a warning vest made with reflective or high-visibility material.

- 2.25.8. Employees shall not be permitted underneath loads handled by lifting or digging equipment. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling material.
- 2.25.9. When mobile equipment is operated adjacent to an excavation, or when such equipment is required to approach the edge of an excavation, a warning system shall be utilized such as barricades, hand or mechanical signals, or stop logs. If possible the grade should be away from the excavation.
- 2.25.10. Where oxygen deficiency or a hazardous atmosphere (atmosphere containing less than 19.5% oxygen) exists or could reasonably be expected to exist, the following shall apply:
- a. The atmosphere in the excavation shall be tested before employees enter excavations greater than 4 feet (1.2 meter) in depth.
 - b. The area shall be continuously ventilated until the oxygen levels are above 19.5%.
 - c. The area shall be ventilated until the flammable gas concentration is below 10% of the lower flammable limits.
 - d. The area shall be monitored continuously to assure that employees are protected.
 - e. Adequate precautions including proper respiratory protection or ventilation shall be taken to prevent exposure.
 - f. Excavations greater than 4 feet (1.2 meter) in depth and less than 15 feet (5 meter) wide must be evaluated to determine if they are permit required confined spaces or not.
- 2.25.11. Employees shall not work in excavations where there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation.
- 2.25.12. If water is controlled or prevented from accumulating by the use of water removal equipment, the water removal equipment and operations shall be monitored by a competent person to ensure proper operation.
- 2.25.13. Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least two feet (0.6 meter) from the edge of excavations or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.
- 2.25.14. Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems, such as shoring, bracing, or underpinning, shall be provided to ensure the stability of such structures for the protection of employees.
- 2.25.15. An excavation below the level of footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees shall not be permitted except when:
- a. A support system, such as underpinning, is provided to ensure the safety of employees and the stability of the structure.
 - b. The excavation is in stable rock.
 - c. A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity.
- 2.25.16. Sidewalks, pavement and appurtenant structure shall not be undermined unless a support system such as shoring is provided to protect employees from the possible collapse of such structures.

- 2.25.17. Daily inspections of excavations, the adjacent areas and protective systems shall be made by a competent person. (Competent person responsibilities should be seen for requirements).
- 2.25.18. Where employees or equipment are required or permitted to cross over excavations, walkways or bridges with standard guard rails shall be provided.
- 2.25.19. Adequate barrier physical protection shall be provided at all remotely located excavations. All wells, pits, shafts, etc., shall be barricaded or covered. Upon completion of exploration and similar operations, temporary wells, pits, shafts, etc., shall be backfilled.

Personnel Protective Systems:

- 2.25.20. Employees in excavations shall be protected from cave-ins by an adequate protective system, which shall be inspected by a competent person. The adequate protective system should be from a manufacturer or approved by a registered professional engineer.
- 2.25.21. The uses of protective systems are required for all excavations, in excess of five feet (1.5 meter), except when the excavation is within stable rock.
- 2.25.22. Trench excavations less than five feet (1.5 meter) in depth may not require the use of protective systems, unless there is evidence of a potential cave-in. The competent person shall determine the need for use of protective systems when such conditions exist.
- 2.25.23. When sloping, benching, or protective systems are required refer to requirements in CFR 1926.652 (OSHA Construction Standards).
- 2.25.24. Whenever support systems, shield systems, or other protective systems are being used, a copy of the manufacturer's specifications, recommendations and limitations sheet shall be in written form and maintained at the job site.

SECTION 2.26: PERMITS

- 2.26.1. A safety permit is a written authorization to perform work. Permits are required at Intel to control work and prevent major accidents or impacts. Hazardous activities are typically permitted (e.g., confined space works, hot works, or electrical work). The permits document the required controls to safeguard and protect those performing the work, other employees in a workplace and the facility itself. GC and CM and Subcontractors must comply with all site permitting requirements. Some sample activities that require permits include but are not limited to:
 - a. Confined Space Entry
 - b. Hot Work / Open Flame Activities
 - c. Excavation and Trenching
 - d. Critical crane Lift Permit
 - e. Asbestos abatement activities
 - f. Dirty works
 - g. Roof Access permit
 - h. Odor producing activities
 - i. Energized Electrical/Electrical work permits
 - j. Scaffold permits
 - k. Any Shutdown of LSS Monitoring, Security or Fire Protection System
- 2.26.2. GC/Contractors must request an Intel permitting matrix for any projects they are completing works on. The GC must ensure that required permits are obtained prior to completing of the works and that permit conditions are adhered to.

SECTION 3 – FIRE PREVENTION

SECTION 3.1: GENERAL FIRE PREVENTION

- 3.1.1. Smoke only in approved/designated areas.
- 3.1.2. Minimize the amount of flammable liquids/gases in the work area to a single work shift supply.
- 3.1.3. Storage of flammable material should be in a FM-approved cabinet and in compliance with local standards.
- 3.1.4. Close containers of flammable liquids when not in use. Report spills and any indication of excessive flammable vapor/gas concentrations immediately.
- 3.1.5. Obtain the necessary permits when performing hot work or disabling fire protection systems.
- 3.1.6. Make sure materials and equipment do not block the access to extinguishers and fire protection hoses, hydrants and standpipes.
- 3.1.7. Ensure materials are kept at least 18 inches (0.5 meter) from sprinkler heads.
- 3.1.8. Attempt to extinguish small fires (trash can size) only if trained to do so. If trained to extinguish fires, familiarize yourself with the location of fire extinguishers in the area.
- 3.1.9. Intel Construction EHS Requirements for Lithium Battery Powered Tools:
 - a. Only use li-ion batteries and devices which are approved by a nationally recognized testing laboratory or regulatory agency (UL, CE, CCC, or equivalent labeling).
 - b. Batteries shall be used in accordance with manufacturer's recommendations.
 - c. Batteries must be inspected prior to each use and defective batteries (e.g. cracked, swelled, discolored, etc.) must be disposed of properly per site and local requirements.
 - d. Compromised (e.g. cracked, swelled, discolored, etc.) battery cases must be treated as defective.
 - e. Batteries shall be stored and protected from elements which could cause corrosion (precipitation, standing water, etc.).
 - f. Batteries under charge must be stowed in non-combustible storage locations with adequate ventilation.
 - g. Storage and charging areas must be free of combustible materials and ignitable liquids.
 - h. Only OEM or certified compatible chargers shall be used.
 - i. Batteries shall be charged only on non-combustible surfaces.
 - j. Batteries shall not be charged on top of permanent or temporary power distribution boxes (spider boxes).
 - k. Batteries that are being charged unsupervised shall be set on timers for no longer than 12 hours.
 - l. If you witness a li-ion battery begin to bulge, vent, hiss, or smoke, immediately disconnect the battery from any power source, get personnel clear, call the site emergency number, and notify your supervisor.

SECTION 3.2: FIRE EXTINGUISHER REQUIREMENTS FOR ACTIVE CONSTRUCTION SITES

- 3.2.1. Active construction projects shall have portable fire extinguishers provided until the permanent building's fire extinguishers are installed.
- 3.2.2. Extinguishers shall be provided in buildings under construction once one of the following conditions exists:
 - a. A second story or roof has been installed – though not necessarily completed - over the foundation.
 - b. The exterior walls have been erected and closed in.
- 3.2.3. The portable fire extinguishers shall be dry or wet chemical, and shall be rated for Ordinary Hazard Occupancy.
- 3.2.4. Each portable fire extinguisher shall have a minimum 2A:20B:C rating and shall be spaced on an interval not to exceed 3,000 square feet (280 square meters) per extinguisher.
- 3.2.5. Maximum travel distance to any fire extinguisher shall not exceed 100 feet (30.5 meters).
- 3.2.6. Transition to providing fire extinguishers at permanent locations and spacing is not necessary until the building/rooms are completed and meet room readiness requirements. All cabinets and mounting hardware for the permanent fire extinguishers shall be marked as 'not in operation' or equivalent until the permanent extinguishers have been installed.

SECTION 3.3: HOT WORK PERMIT

- 3.3.1. A Non-Electrical Hot Work Permit and SIPP/CIPP (as specified by Intel or project site) are required any time work involves the use of open flame or spark producing equipment. This includes welding, cutting, burning, grinding and/or soldering operations.
- 3.3.2. Prior to commencing work, all work specific/area hazards must be understood and communicated and all appropriate permits will be obtained.
- 3.3.3. All appropriate permits will be posted in the area of the work.
- 3.3.4. All personnel in the surrounding work area must be properly warned of the hazardous work area by the use of barricades or other communication means.
- 3.3.5. Prior to work, within 35 feet (~ 11 meter) of work area:
 - a. Flammable liquids, dust lint and oily deposits are to be removed
 - b. Explosive atmosphere is eliminated or if not possible, monitored
 - c. Floors swept clean
 - d. Combustible floors wet down, combustibles in the area removed or covered with fire resistive protection
 - e. Floor and wall openings covered
 - f. Fire resistive tarpaulins suspended beneath work.
- 3.3.6. A fire watch will be employed while Non-Electrical Hot Work is ongoing and for 60 minutes after with fire extinguishing equipment immediately available at the work area.
- 3.3.7. A fire watch must be present for one hour after completion of the work.
- 3.3.8. All fire watch personnel will be trained in the use of the fire protection equipment and fire watch duties.

- 3.3.9. Non-Electrical Hot Work will not be conducted in any area classified as a Class I, Division I or II area according to the current Uniform Fire Code. Contact your local safety representative or project manager for questions.

SECTION 3.4: FIRE SYSTEM WORK/RED TAG PROCESS

- 3.4.1. Obtain the proper permits and approvals before conducting work that could affect facility fire detection and suppression systems.
- 3.4.2. Permits must be closed after work is completed. Permits are ordinarily issued for one shift only, approval must be granted if work will extend beyond the shift in which the permit was issued. Permits may not be modified; new permits must be approved.
- 3.4.3. Participants in fire system work must be trained to the level of their responsibilities (i.e., buddy, fire watcher).
- 3.4.4. Everyone working in the impaired area must be briefed on the hazards present and precautions to be taken.
- 3.4.5. All available sprinklers, fire hose systems and extinguishers will be in service and operable.
- 3.4.6. Additional safety measures must be taken when hot work or energized electrical work is conducted in an area that has an impaired fire system.

SECTION 3.5: WELDING, CUTTING AND BRAZING

- 3.5.1. Protection of the eyes, face, neck and hands is required during welding.
- 3.5.2. Only natural fiber clothing may be worn on the upper body extremities. A leather apron or full body leathers is recommended.
- 3.5.3. Respiratory protection is not required for most welding jobs if proper ventilation is provided.
- 3.5.4. Welding screens are required to protect adjacent workers from exposure to non-ionizing radiation. Adjacent workers are required to wear appropriate eye protection where screens are not feasible. Welder's assistants and those working inside the screened-in area must wear appropriate eye protection.
- 3.5.5. When welding, cutting, burning, grinding, chipping, abrasive blasting, rivet busting, or otherwise disturbing painted or coated surfaces, a pre-assessment will be required to determine if the surfaces contain lead-based paint. If bulk sampling results for paint are positive for lead, OSHA Standard 29 CFR 1926.62 will be followed.
- 3.5.6. Chlorinated solvents are prohibited from use in or adjacent to all welding operations. Decomposition products such as phosgene can be formed as a result of the reaction of these solvent vapors with the radiation energy produced during welding operations.

SECTION 4 – INDUSTRIAL HYGIENE

SECTION 4.1: CONSTRUCTION ERGONOMICS

- 4.1.1. All contractors shall have a process in place that includes risk factor assessments and mitigation:
 - a. An Musculoskeletal Disease (MSD)/Cumulative Trauma Disorders (CTD) risk factor assessment and mitigation plan shall be completed for all job tasks, tools used, work procedures, work stations and equipment operation where exposure may exist.
 - i. Emphasis shall be placed on manual material handling, equipment and tool use.
 - b. The MSD/CTD risk assessment shall be incorporated into the JHA that is specific for that scope of work.
 - c. Personnel must be trained in the assessment created for their specific tasks.
- 4.1.2. Monthly indicators shall be provided to the Intel Site Construction EHS Manager including:
 - a. Ergonomic Safe Behavior Observations
 - b. Musculoskeletal OCIP/insurance claims.
- 4.1.3. Contractor shall implement an employee recognition program that generates ideas to reduce MSD risks to the worker and incorporates lean principles.

SECTION 4.2: HAZARD COMMUNICATION

- 4.2.1. All Intel contractors have to follow local Hazard Communication standards and are responsible for ensuring that their workers and subcontractors receive Hazard Communication training prior to work at Intel sites. As with all required training, proof of training will be made available to Intel project management upon request.
- 4.2.2. All contractors working on Intel sites will have a written hazard communication program approved by Intel project management and in place as part of the project safety plan.
- 4.2.3. Contractor Safety Data Sheets (SDS) for all hazardous materials required to complete the work scope will be present on-site and made available to all workers (Intel and contractor). The location of the SDS must be communicated to all employees as part of project orientation.
- 4.2.4. All SDS must be in English and the primary language being spoken in the country where the work is occurring.
- 4.2.5. All hazardous materials in primary containers must be labeled. Each container label must list the substance name, hazardous ingredients, hazard warnings and the manufacturer's name and address.
- 4.2.6. Intel SDSs are available through your Intel sponsor, Intel EHS or to those granted Intel network accounts.

SECTION 4.3: HEAT AND COLD STRESS MANAGEMENT

- 4.3.1. Cold Stress
 - a. Workers will be trained in the signs/symptoms of cold stress. They will also be instructed on the precautionary measures to be taken to prevent cold stress and immediate first aid actions to be taken in the event of overexposure.
 - b. Pain in the extremities is often the first sign of cold stress, with shivering a second and more advanced sign; if either of these signs becomes noticeable seek shelter.
 - c. Always wear warm dry clothing. If clothing becomes damp, dry clothes must be changed into immediately.

- d. Gloves will be worn in cold temperatures to prevent loss of manual dexterity that may contribute to injuries or incidents. The combined exposure to cold temperatures and vibrating tools must be avoided.
- e. For work in temperatures below 20° F (minus 7 Celsius), heated shelters will be provided and work/rest regimens established.
- f. Cold stress prevention must be mentioned in toolbox talks and included in pre-task planning.

4.3.2. Heat Stress

- a. Workers will be trained in the signs/symptoms of heat stress. They will also be instructed on the precautionary measures to be taken to prevent heat stress and immediate first aid actions to be taken in the event of overexposure.
- b. Methods approved by the ACGIH (American Conference of Industrial Hygiene) or any other country regulatory body must be used to evaluate and control the heat stress load on workers. Factors include the Wet Bulb Globe Temperature (a composite temperature used to estimate the effect of temperature, humidity, wind speed and solar radiations on humans) and the worker's work load, clothing and health.
- c. Suitable work/rest regimens will be implemented. Cool/shaded areas will be designated as worker rest areas.
- d. Cool drinking water and sanitary drinking cups will be provided to workers.
- e. Ventilation in work areas must be evaluated. Portable fans should be considered in "still" areas.
- f. Heat stress prevention must be mentioned in tool box talks and included in pre-task planning. Labor-intensive tasks will be planned for early morning and late evening hours when temperatures are lowest.
- g. Workers who are unaccustomed to physically demanding work in hot environments must be monitored closely when starting challenging jobs.

SECTION 4.4: LASER SAFETY

- 4.4.1. At a minimum the use and inspection of lasers, both rotating and stationary, shall comply with OSHA, ANSI or any other country specific regulation, and the manufacturer's recommendations and requirements.
- 4.4.2. Laser beam or reflected beam can cause injuries to the eyes and skin during use. No laser beam will be directed at any worker. Associated hazards such as electrical, noise, fire and health should be considered. Lasers must not be left unattended during operation.
- 4.4.3. The owner's manual shall be kept with the equipment at all times and shall be produced upon request.
- 4.4.4. Laser users shall be trained and certified for the class of laser he or she is using. Proof of qualification shall be maintained on the user and shall be produced upon request.
- 4.4.5. Where Class III or more powerful lasers are used, appropriate laser warning placards shall be conspicuously posted on the equipment and laser warning signs shall be posted in the area where the beam reaches/affects.
- 4.4.6. Where a certain model or class laser requires the use of a specific eye protection for protection against direct or reflected laser light, this operation shall be conducted only in an area where access is restricted to only the user(s), or shall be done off-hours.
- 4.4.7. Lasers must not be left unattended during operation. Beam shutters or caps will be utilized, or the laser turned off when laser transmission is not actually required.

- 4.4.8. A warning sign must be attached to equipment and in conspicuous locations indicating the potential eye hazard associated with the laser and warning against looking into the primary beam or reflections.

SECTION 4.5: POTENTIAL EXPOSURE MONITORING

- 4.5.1. When there is potential or real exposure to chemical substances or physical agents like noise, radiation (ionizing and non-ionizing), lasers, asbestos, silica particles and others at Intel sites, the contractor will:
- a. Identify and plan for the possible hazard in the risk assessment/JHA/method statement and pre-task plan and ensure a comprehensive mitigation plan is established.
 - b. Create and implement a worker exposure monitoring plan as necessary to ensure the safety of contractor's workers.
 - c. Implement notification and documentation procedures including notification written consent, results report, record retention and confidentiality.
- 4.5.2. Based on location, a documented risk assessment in addition to the chemical use evaluation (CUE) process may be required. An example risk assessment is included in Section 6 - Appendices (**Appendix D: Chemical Risk Assessment Template**).
- 4.5.3. Contractor agrees to immediately respond to exposure complaints from contractor's workers or other affected persons.
- 4.5.4. Contractor agrees to provide to Intel's medical director within 24 hours of Intel's formal request, a copy of any occupational medical information by a process that maintains the workers confidentiality.
- 4.5.5. Contractor agrees to allow Intel to perform periodic work area air monitoring during performance of work. Intel agrees to share the results of said monitoring as requested by affected company.
- 4.5.6. Contractor can request, in writing, support from Intel in classification and monitoring of work place exposure(s).

SECTION 4.6: ASBESTOS AND LEAD

- 4.6.1. For any work involving the disturbance of potential, suspected or known asbestos or lead containing material, please contact the site construction EHS lead and asbestos program owner for site specific requirements.
- 4.6.2. Based on location, some sites may have a database showing materials that have been tested for the presence of lead and/or asbestos.

SECTION 5 – ENVIRONMENTAL

SECTION 5.1: AIR POLLUTION CONTROL PLAN (APCP)

5.1.1. APCP – OVERVIEW

The purpose of a written Air Pollution Control Plan (APCP) is to ensure air pollution does not extend beyond the site boundary in sufficient quantities and to minimize the duration that contributes to exceeding government laws, regulations and standards or that cause deterioration of the “quality of life” in neighboring properties (e.g., nuisance). The APCP applies to all contractors and their subcontractors and must be available for inspection at all times or provided to Construction or Site EHS. The General Contractor/Construction Manager must write the APCP and ensure communication and conformance to the requirements of the APCP.

5.1.2. APCP - AIR POLLUTION POTENTIAL EXAMPLES

The APCP shall include sources of air pollution and mitigation measures. Examples of activities that potentially generate air pollution are:

- a. Site preparation and civil engineering work (e.g., grubbing, clearing, scraping, excavating, piling and filling) that produce dust or emissions.
- b. Vehicular traffic dust from exposed earth and gravel surfaces.
- c. Soil treatment with lime, pesticides, fungicides, dust suppressants or fertilizers.
- d. Surface preparation and coating that create dust, vapors or spray from sand/beam blasting, painting, epoxy coating, hot tar roofing and asphalt paving.
- e. Mobile equipment that generates dust, vapors and spray (portable concrete batch plants, rock crushers, chippers, debris and soil thermal treatment, tank vents and portable electrical generators).
- f. Demolition activities create dust, asbestos or lead during building, structure, pipe and tank removal.
- g. Offloading /Loading of chemicals/Silica/other powders is often used, which generates aggregate particles.

5.1.3. APCP - WRITING THE APCP

The following is a brief summary of the key elements, organized by construction activity that must be addressed or otherwise included in each APCP. **Appendices E through J** are checklists that can assist in-field checklists to ensure compliance with this plan. The APCP must be available for inspection at all times or provided to Intel’s Construction EHS or Site EHS personnel.

5.1.4. APCP - SITE PREPARATION AND VEHICULAR TRAFFIC

In some jurisdictions, a dust control permit must be obtained prior to commencement of work, and, in other cases, a building permit will not be issued unless a dust control plan has been prepared and submitted. Work with the site environmental engineer (Air Program Owner) to ensure all regulatory requirements are satisfied before beginning work. Whether required by the local jurisdiction or not, the General Contractor/Construction Manager must prepare a dust control plan or obtain the plan from the earthwork subcontractor prior to beginning construction. The dust control plan must be in the site-specific APCP and must include at minimum:

- a. The plan shall refer to the best practice for water use and avoid wasting water. City water should be use or treated water with the same water quality as city water. Keep the water quality laboratory reports.

- b. A log that specifies the location, frequency and amount of water to be applied per day to potentially dusty areas, filled out by the truck driver. The log must remain on-site at all times for inspection.
- c. Provisions for determining when additional dust control is necessary (e.g., windy days, increased traffic, newly exposed soil, etc.).
- d. Areas that require the placement of aggregate to keep dust down (e.g., heavily traveled roads, equipment staging areas, etc.)
- e. Copies of permits required by local agencies for on-site water storage. Some water storage (e.g., surface impoundments) require significant permitting lead time or are disallowed by local agencies.

NOTE: Never use dust suppression chemicals (including oil).

All dust control plans and permits must be provided to Intel's on-site Construction EHS or Site EHS personnel or otherwise available for inspection at all times.

See Example **Appendix E: Site Planning Activities Checklist** and **Appendix F: Area Water Application Log Sheet**.

5.1.5. APCP - APPLICATION OF CHEMICALS TO THE SOILS AND SURFACE PREPARATION AND COATING

When applying chemicals and coatings consider:

- a. Owner Construction EHS or Site EHS must pre-approve the chemical prior to it arriving on-site. (Refer to Owner's process under "Section 5.2.6: Hazardous Material Control Plan").
- b. Workers must be trained and licensed to apply certain chemicals. The General Contractor/Construction Manager must obtain a copy of the required permits for each individual who will be applying any chemicals to the soil/ground (permits/licenses must be included in the APCP).
- c. Adverse conditions (wind, rain) that can cause chemicals, dust, particulate, or other air-borne pollutants to leave the construction site and threaten sensitive receptors.
- d. Dust or particle suppression control for all bead/sand blasting and spray painting to prevent material travel (use sheeting material).
- e. Chemicals shall only be applied as specified by the manufacturer or as described in the site-specific APCP.
- f. Chemical waste produced must go to the site hazardous waste accumulation area designated by site EHS hazardous waste program owner or site EHS representative to profile and define disposal options.

See Example **Appendix G: Chemical Application Checklist** and **Appendix H: Surface Preparation And Coating Checklist**.

5.1.6. APCP - MOBILE EQUIPMENT

Typical mobile equipment includes portable concrete batch plants, rock crushers, thermal treatment of debris or soils, portable petroleum tanks, and diesel-powered electric generators. Pollution actions that must be defined in the APCP include:

- a. Mobile equipment can require local and state permits that shall be obtained by the subcontractor and given to the General Contractor/Construction Manager prior to the equipment entering the site.
- b. If the subcontractor indicates permits are not required, the General Contractor/Construction Manager must verify permit requirements by contacting Owner Construction EHS or Site EHS personnel.

- c. If a portable concrete batch plant is brought on-site, local and federal regulations and reporting requirements must be reviewed by Owner Construction EHS or Site EHS personnel prior to bringing equipment on-site.
- d. All equipment shall be located on the project site.
- e. For portable petroleum tanks, refer to the requirements of the Owner Construction Hazardous Material Control Plan.
- f. Diesel fired generators can only remain on-site for one year

NOTE: Thermal treatment units are not allowed on Intel construction sites.

See Example **Appendix I: Mobile Equipment Setup Checklist**.

5.1.7. APCP – DEMOLITION

Demolition of buildings, tanks, piping systems, etc. can result in air pollutants' release. With Owner EHS assistance, the general contractor/construction manager or subcontractor must:

- a. Determine characteristics of the area to be demolished (chemical hazards and residues).
- b. Determine any state or local permits that are required for demolition and obtain the permits.
- c. A certified asbestos removal contractor shall be used for any asbestos removal activity.
- d. Determine required control measures if sand/shot/bead blasting is to be performed.
- e. Remove any liquids, sludge's, or residues in tanks, pipes, pumps or valves.
- f. Demolition of any tool, equipment or construction materials that had previously come in contact with any chemical (including water) must be performed according to 6D Process.

See Example **Appendix J: Demolition Operations Checklist**.

SECTION 5.2: HAZARDOUS MATERIAL CONTROL PLAN (HMCP)

5.2.1. HMCP - PURPOSE

The purpose of the Hazardous Material Control Plan (HMCP) is to establish criteria for the management of hazardous materials, provide guidance for the establishment of hazardous materials communication, establish standards for the procurement and management of hazardous materials and to provide assessment tools for the General Contractor/Construction Manager, construction manager and subcontractors, to use in verifying compliance with Intel's Minimum Performance Standards (MPS), corporate requirements, project and site specific Intel standards and requirements, as well as provide assistance for complying with applicable federal, state, and local hazardous materials regulations.

5.2.2. HMCP - APPLICABILITY AND GOALS

The Hazardous Material Control Plan applies to all construction management staff, General Contractor/Construction Managers and their subcontractors involved in the transportation, handling, accumulation, and disposal of hazardous materials and/or hazardous waste on the Intel site.

The General Contractor/Construction Manager will establish a control plan for managing hazardous materials. The goal of the plan is to ensure the contractor and subcontractors:

- a. Identify each hazardous material to be used on the Intel site by type, quantity and duration of use.

- b. Establish facilities for the storage of hazardous materials prior to their arrival on the site.
- c. Identify and understand use and contingency requirements for hazardous materials to be brought on-site.
- d. Identify and implement the training required for the transportation, handling, accumulation and disposal of hazardous materials and/or hazardous waste.
- e. Obtain appropriate approval for hazardous materials prior to their arrival on-site.
- f. Ensure that chemicals that are brought on-site are reviewed and verified for legality of usage.

5.2.3. HMCP – DEFINITIONS

Examples of hazardous materials that fall under the requirements of this document include, but are not limited to:

Any substance or mixture of substances which is:

- a. Toxic
- b. Corrosive
- c. An irritant
- d. A strong sensitizer
- e. Pyrophoric, flammable, ignitable or combustible
- f. Radioactive
- g. Explosive
- h. Reactive
- i. Generates pressure through decomposition, heat or other means
- j. Any substance or mixture of substances that may cause personnel injury or illness during or as a proximate result of any customary or reasonable foreseeable handling or use, and
- k. Any substance or mixture of substances that is defined or regulated by any applicable EHS laws as hazardous, including, but not limited to, hazardous substances, hazardous materials, toxic substances, hazardous wastes, carcinogens, reproductive toxins and the like.

5.2.4. HMCP - EXAMPLES OF HAZARDOUS MATERIALS

Examples of hazardous materials include, but are not limited to:

- a. Adhesives
- b. Paints and thinners (e.g., mineral spirits)
- c. Solvents (e.g., isopropyl alcohol, acetone)
- d. Asphalts, tar sealants and coatings
- e. Lead (e.g., piping, roof flashing and solders)
- f. Landscaping pesticides and herbicides (weed killers)
- g. Petroleum products (e.g., gasoline, diesel, motor and lube oils, and greases)
- h. Acids and caustics
- i. Refrigerants and coolants (e.g., Freon)
- j. Trisodium phosphate (used in DI pipe cleaning)

- k. Hydrogen peroxide (used in DI pipe sterilization)
- l. Water treatment chemicals for cooling towers and closed loops
- m. Batteries (alkaline, lithium, Ni-Cad, lead acid)
- n. Exit signs containing Tritium (contact site EHS Hazardous Waste program owner)
- o. Mercury containing equipment (e.g. switches, light bulbs)

In addition to the above materials, the following building materials (not an inclusive list) may also be considered hazardous materials due to their potential to contain asbestos (**Table 4**). Note: This list does not include every product that may contain asbestos. It is intended as a general guide to show which types of materials may contain asbestos.

Table 4. Building materials which may be considered hazardous materials due to their potential to contain asbestos (not an inclusive list).

INSULATION:	INTERIOR BUILDING MATERIALS AND SYSTEMS	EXTERIOR BUILDING MATERIALS:
<ul style="list-style-type: none"> • Blown-in insulation • Boiler/tank insulation • Breaching insulation • Electrical wiring insulation • Fireproofing • Furnace insulation • HVAC duct insulation • Paper on backside of fiberglass insulation • Pipe insulation/fittings • Sink insulation • Spray-applied insulation 	<ul style="list-style-type: none"> • Acoustical ceiling texture (“popcorn”) • Asphalt flooring • Base flashing • Ceiling tiles/panels/mastic • Chalkboards • Construction mastics (e.g. mirror) • Duct tape/paper • Ductwork flexible connections • Electrical cloth • Electrical panel partitions • Elevator brake shoes • Fire blankets • Fire curtains/hose • Fire doors • High temperature gaskets • Incandescent light fixture backing • Joint compound/wallboard • Laboratory hoods/table tops • Laboratory fume hood • Mudded pipe elbow insulation • Packing materials • Paper fire box in walls • Plaster/ wall joints • Poured flooring • Sub flooring slip sheet • Textured paints/coatings • Vapor barrier • Vinyl floor tile/mastic • Vinyl sheet flooring/mastic • Vinyl wall coverings • Window glazing 	<ul style="list-style-type: none"> • Brick mortar • Built-up roofing • Caulking/putties • Cement board/transite • Cement pipes • Cement roofing shingles • Gray roofing paint • Nicolet (white) roofing paper • Rolled/hot mopped roofing • Roofing materials/mastic/sealants • Stucco

ELECTRONIC WASTE: Electronic waste is regulated by the country, region, or state. Contact EHS for site specific electronic waste program specifics. For example, in Asia, these are typically fully regulated as scheduled or hazardous waste and cannot be shipped without proper documentation or permits.

5.2.5. HMCP - COMMUNICATION AND TRAINING

The General Contractor/Construction Manager is responsible for establishing and maintaining a Hazard Communication program which includes a communication program for the contractor and subcontractor employees. Contractor/subcontractor companies will be responsible for the development, implementation and documentation of training in accordance with applicable federal, state and local statutes, regulations and requirements based on those hazardous materials that will be used on Intel's site. This training will be provided to the contractor/subcontractor's employees that are required to be exposed to, or work around those hazardous materials. This hazard Communication program will also include provisions for access to Safety Data Sheets (SDS) for each contractor employee.

The General Contractor/Construction Manager is responsible for establishing a Hazardous Waste training program in accordance with applicable local, state, and federal statutes based on the hazardous waste generated during construction activity.

The documentation of training materials and implementation will be available to Intel for monitoring and auditing of the contractor/subcontractor's performance and compliance with the Hazardous Materials Control Plan.

5.2.6. HMCP - CHEMICAL USE EVALUATION

The General Contractor/Construction Manager is responsible for establishing a process which ensures contractor and subcontractor chemicals are reviewed by Intel Construction EHS or Site EHS personnel prior to being purchased or otherwise brought to an Intel facility. A chemical, its estimated quantity and its use must be reviewed prior to delivery and use of the substance. The General Contractor/Construction Manager will coordinate the approval requests with the designated Intel Construction EHS or Site EHS representative. These requests will consist of a description of the chemical's quantity and intended use and will be accompanied by a SDS. Refer to **Appendix K: Contractor Chemical Use Request Form**.

While certain chemicals and uses may not be approved due to site specific regulation or conditions, the following substances are prohibited from use at Intel facilities without Intel EHS Approval:

- a. Asbestos or asbestos containing construction materials, including, but not limited to, asbestos-containing insulation, ceiling tiles, floor tiles, cement, adhesives and fire prevention materials.
- b. Polychlorinated biphenyls (PCBs), including, but not limited to PCB-containing transformers, light ballasts, heat transfer fluids.
- c. Class I or Class II ozone depleting substances as defined by 40 CFR § 82, Appendix A and appendix B to Subpart A.
- d. Lead-based paints.

For sites in Arizona, on a monthly basis the contractor will supply to Intel Site EHS a list of products purchased that contain a VOC solvent and must include the following information for each product. Contact AZ Site EHS with any questions about what constitutes a VOC solvent if unsure.

- e. Product Name
- f. SDS
- g. Location of storage
- h. Type of storage container
- i. Purchase quantity.

Intel EHS must be notified in writing of all hazardous materials brought on-site that have a Hazardous Materials Information System (HMIS) rating greater than 3 or in excess of 55 gallons (208 liters) or if there is any other local regulation requirements (e.g., poison permit

submission). Work with Intel Construction EHS or Site EHS personnel to determine the reporting process at that site as well as any other requirements for chemical submittal.

The contractors will develop a procedure for obtaining approval from the Intel site Environmental Engineer prior to generating a hazardous waste.

NOTE: Refer to Intel's Chemical Use Evaluation standard for other chemicals with use restrictions and bans.

5.2.7. HMCP - MATERIAL SHIPPING/RECEIPT

The General Contractor/Construction Manager must establish a process to ensure the following:

- a. Verification that the chemical has been reviewed by Intel EHS
- b. Chemical containers are not leaking or damaged
- c. Labeling is intact
- d. Storage is set up in accordance with EHS requirements
- e. Arrange for material transport to storage or use area by trained individuals to ensure there is no spillage, leakage, or release.

If the verifications or inspections are unsatisfactory, the shipment will not be allowed to remain on-site. The contractor/subcontractor will be responsible for contacting the shipment supplier to resolve discrepancies prior to accepting the shipment.

Appendix L: Hazardous Material Receipt Checklist is included for reference.

5.2.8. HMCP - HAZARDOUS MATERIAL STORAGE AREA CRITERIA

The General Contractor/Construction Manager must implement a contingency planning process for each chemical storage area, including periodic inspections and maintaining spill response material at the storage areas. Less than a 30 day supply of hazardous materials shall be maintained on-site at any time. Contractor/Construction Manager must ensure chemical storage areas meet the following criteria:

- a. The area is labeled with material stored and the name and 24-hour phone number of the individual responsible for the hazardous material.
- b. The storage area inventory is updated.
- c. Containers have secure lid/caps and labels.
- d. Security measures have been established.
- e. The storage area requirements depend on the materials being stored. If the hazardous materials are to be left in a roped off and posted area, the area shall be constructed to control inadvertent access to the materials and all of the hazardous material is contained. This requires lining the area if materials could leak or be leached in the ground.
- f. Unobstructed access and egress and emergency contact information posted.
- g. If multiple types of hazardous materials are stored, the area must ensure no incompatible materials are stored adjacent to each other and there is sufficient distance between such materials to ensure the safety of both personnel and those materials.
- h. Liquid storage requires secondary containment structures (>110% of the largest single container within the storage area). Appropriate provisions, such as chemical containment cabinets, shall be made for combined storage of small quantities of compatible chemicals.

- i. Labeled with the appropriate NFPA labels/Global Harmonization System (GHS) on the chemical classification/product labeling, signs and local regulation requirements.
- j. Dispensing/container refilling areas shall be equipped with drip containment pans.
- k. Personnel responsible for chemical area management shall receive hazardous materials and/or hazardous waste training: the hazards of materials stored, release/spill response, and dispensed/repackaged substances labeling.
- l. Storage of gas cylinders: full gas cylinders should be separated from empty cylinders, should be store sealed with cap and secured and tied properly to avoid falls. If multiple types of hazardous gases are to be stored, the area should be of sufficient size and configuration to ensure no incompatible materials.

5.2.9. HMCP - TEMPORARY POINT-OF-USE STORAGE AREAS

When hazardous materials are left unattended at the job area, the following minimum requirements shall be met:

- a. The material is clearly labeled.
- b. The area is labeled with material stored and the name and 24-hour phone number of the individual responsible for the hazardous materials.
- c. The storage area requirements depend on the materials being stored. If the hazardous materials are to be left in a roped off and posted area, the area shall be constructed to control inadvertent access to the materials and all of the hazardous material is contained. This requires lining the area if materials could leak or be leached in the ground.
- d. The material container/bottle/package/barrel/etc. shall be sealed and closed and stored in a manner to avoid any leakage to the ground.

The General Contractor/Construction Manager is responsible for implementing a contingency planning process for each of the chemical storage areas. This process may result in periodic inspections, as well as maintaining adequate spill response material readily available at the storage areas.

To prevent an excessive risk of release or spills of material, large quantities of chemical should not be stored. Less than a thirty day supply of hazardous materials should be maintained on-site at any time.

Appendix M: Hazardous Material Storage Checklist is included for reference.

5.2.10. HMCP - MATERIAL USE

The contractor/subcontractor will have procedures for transportation, temporary storage and use of hazardous material in accordance with approved work plans and Odorous Work Permits, Confined Space Entry Permits and Dirty Work Permits (in clean room areas) when applicable. Procedures will have the following control measures, where applicable:

- a. Personnel training requirements
- b. Personal protective equipment (PPE) requirements
- c. Monitoring requirements
- d. Spill prevention measures
- e. Fire protection measures
- f. Barriers/safe working distances for employees not involved in the use of hazardous materials
- g. Inventory control and reporting measures
- h. Contingency planning in the event of a spill, leak or release of hazardous materials
- i. New labeling if the chemical is repackaged
- j. Waste collections and segregation methods.

5.2.11. HMCP - MATERIAL DISPOSAL

The Hazardous Waste Guidelines outline hazardous waste disposal and is done through Construction EHS or Site EHS personnel. Waste that is a regulated waste will be handled in accordance with the site Intel Hazardous Waste Management Program. The contractor must provide a plan documenting:

- a. Determination of hazardous waste generated with EHS (chemical contaminated tools, lights, batteries, chemical debris, used oil, petroleum contaminated soils, spent solvents etc.).
- b. A method to properly collect, identify and label Hazardous and Chemical Wastes (and recycle). Use permanent pen to prevent the label from fading.
- c. Proof of RCRA or other legally specified training for those managing/handling hazardous waste.
- d. All hazardous waste must be managed in a 90 day accumulation area with sign-off from Site EHS.
- e. A disposal plan.
- f. All chemical waste generated at Intel must be managed by Intel-authorized suppliers or directly by Intel at the direction of Intel EHS.
- g. Coordination with site EHS hazardous waste program owner to dispose waste.
- h. Empty containers used for the storage or transportation of hazardous materials will be disposed of as appropriate. Containers are not considered empty if more material can be removed (e.g. pouring, aspirating, or draining).

NOTE: containers cannot be air-dried.

If construction activities require repackaging chemicals into containers other than the original container, the contents of the new container will be clearly labeled with the chemical name and hazards listed on the new container.

Appendix N: Hazardous Material Disposal Checklist is included for reference.

5.2.12. HMCP - AUDITING

Audit programs have been established to assist the General Contractor/Construction Manager in evaluating their operations to ensure the control of hazardous materials and compliance with the requirements and intent of this plan. Audit checklists are included in **Appendix O: Daily Hazardous Material Storage Area And Point Of Use Audit Checklist**, **Appendix P: Contractor/Subcontractor Hazardous Material Control Program Compliance Audit Checklist** and **Appendix Q: Hazardous material Work Observation Form** as a reference and also in **Table 5** below. Intel reserves the right to audit any and all contractor operations on Intel property and to review all audit checklists and corrective action plans. All completed inspection checklists must be available for review upon request.

Table 5. Daily hazardous material storage area and point of use audit checklist

	Criteria Met?	Deficiency	Action/Owner	Date Corrected
Postings				
Access				
Integrity				
Labeling				
Security				
Compatibility				

SECTION 5.3: POLLUTION PREVENTION/ENVIRONMENTAL INCIDENT RESPONSE PLAN (PPEIRP)

5.3.1. PPEIRP - PURPOSE

The purpose of this Pollution Prevention/Environmental Incident Response Plan (PPEIRP) is to provide guidance for procedures, methods and equipment used to prevent the discharge of pollutants and hazardous substances into air, water, or soil, and to protect health and well-being of personnel on-site and the local community in the event of an incident. This guidance specifies the criteria upon which a site specific incident response plan should be based.

This plan is also a training reference for Emergency Coordinators and Emergency Response Teams. The General Contractor/Construction Manager must create a site specific plan that designates an Emergency Coordinator.

5.3.2. PPEIRP - APPLICABILITY

The PPEIRP applies to all contractors and their subcontractors involved in site development, construction, or build-out activities at the Intel site. It is the responsibility of the General Contractor/Construction Manager to prepare a site specific environmental incident plan based on an evaluation of hazardous materials present at the site and the anticipated release routes and scenarios.

For purposes of this plan, an environmental incident is defined as an actual or threatened release of hazardous materials or hazardous waste into or on surface waters, sanitary sewer, soil, or air. A threatened release is included in the definition as it represents an incident which may require response of the emergency response staff (e.g., leaking into containment structures or a release on pavement which requires clean-up).

5.3.3. PPEIRP - ROLES AND RESPONSIBILITIES

The General Contractor/Construction Manager, Construction EHS, Site EHS and ERT will assist in the development of the plan (**Table 6**).

Table 6. The roles and responsibilities of the General Contractor (GM)/Construction Manager (CM), Intel EHS and Intel ERT.

GC/CM	OWNER EHS	OWNER ERT
Develop emergency response plan with escalation procedures. Provide to Owner's Construction EHS or Site EHS personnel for ratification	Evaluate state & local Reportable Quantity (RQ) requirements & establish reporting contacts	Primary response for spills at sustaining sites
Designate contractor Emergency Coordinator	Perform regulatory notifications upon receipt of alert from emergency teams	
Maintain incident response materials		
Perform training	Ratify emergency response plans developed by GC/CM	
Designate construction emergency response team Report to Intel EHS immediately on any Environmental incident/Emergency	Overall emergency coordinator for site	
Update plan as site develops		
Develop communication mechanisms among subcontractors		
Determine evacuation procedures	Approval	

5.3.4. PPEIRP - PLAN CONTENT

The plan shall include the following locations, at a minimum:

- a. Hazardous materials and regulated and/or chemical wastes
- b. Location and description of structural spill prevention controls
- c. Incident response material and spill cleanup supplies
- d. Nearest drainage structure (storm drain, ditch, waterway) to each storage area
- e. Site materials receiving and shipping areas which may receive hazardous materials or chemical and/or regulated wastes
- f. Major excavation and earthwork activities and general drainage directions from those areas (due to risk of fuel spills)
- g. Fueling, maintenance, and/or vehicle/equipment washout areas
- h. Evacuation routes and assembly areas.

5.3.5. PPEIRP - DESIGNATION OF STORAGE AREAS

Hazardous materials and wastes must be stored in designated areas per the requirements of the Hazardous Materials Control Plan (HMCP) and Hazardous Waste Management Plan (HWMP). The HMCP and HWMP must have descriptions of the materials stored in each area and potential release routes.

5.3.6. PPEIRP - COMMUNICATION

Communication systems are required for immediate alert among site workers, staff and regulatory agency. Site communications shall include:

- a. Internal system for immediate emergency notification and instructions to response personnel.
- b. Emergency alarm or system for immediate warning to site personnel of an emergency situation.
- c. External telephone and radio devices to summon emergency assistance from response agencies.

The plan shall also include means for contacting Construction EHS or Site EHS personnel for an environmental emergency. Owner will provide the emergency coordinator with contact information during plan development. Construction EHS or Site EHS personnel will determine if regulatory agencies need to be alerted. The GC Emergency Coordinator has the authority to contact regulatory agencies as required by law, but shall only do so if the designated Owner's Construction EHS or Site EHS personnel cannot be contacted, or if time delay would result in exacerbation of the incident or regulatory violation.

5.3.7. PPEIRP - CONTACT INFORMATION

The plan will include either a list or matrix of contact information for regulatory authorities and emergency resources. The emergency coordinator and Construction EHS or Site EHS will determine the appropriate local authorities and contact information.

5.3.8. PPEIRP - REPORTING MATRIX

A matrix of the most commonly used hazardous materials should be developed, with the agencies that require notification for releases of these materials designated with each material or material class. The Reportable Quantity (RQ) for all materials should be determined and included in the matrix. While not every chemical used can be included in the matrix, logical categories should be established which can serve as a reporting reference. As these RQs vary within states and municipalities, the General Contractor/Construction Manager should establish local reporting requirements in conjunction with Intel Construction EHS or Site EHS personnel.

5.3.9. PPEIRP - INCIDENT RESPONSE SUPPLIES

The plan should evaluate each of the potential hazardous material storage areas and establish the location and contents of appropriate response and clean-up supplies. These materials typically include absorbent booms and pads, oil dry, personal protective equipment, clean-up tools, simple chemical detection equipment such as pH paper, absorbent wipes, heavy duty waste bags, labels, caution tape, etc. Specific items and inventories will be dictated by the hazards and quantities of chemicals in the area. It is recommended that the types of hazards for each area be discussed in the plan, and a specific inventory sheet for each response kit be included as an attachment. At a minimum, response kits will be required in each of the designated hazardous materials and hazardous waste storage areas depicted on the plan's diagram. At least one of the incident response kits should be able to be moved to an incident which occurs anywhere on-site; ideally the unit will be pallet mounted or otherwise mobile.

5.3.10. PPEIRP - MAINTENANCE OF RESPONSE SUPPLIES

A system for maintaining sufficient inventory of clean-up equipment should be developed once the appropriate materials are specified. The system should consist of routine inspections of the materials and conditions under which re-stocking of the supplies should occur, as well as the time frame in which the re-supply will occur. It is recommended that routine inventories of the supplies be avoided, as this time-intensive type of system will probably not occur with the needed frequency. The General Contractor/Construction Manager may wish to establish kits with fixed inventories, which are then sealed until needed. A frequent inspection of the seal condition will then determine whether a full inventory and re-supply is warranted. Should routine maintenance of supplies be required (respiratory protection equipment, fire extinguishers, etc.), the system for ensuring maintenance on these items should be included in the plan.

5.3.11. PPEIRP - DESIGNATION OF EMERGENCY RESPONSE TEAM (ERT)

The General Contractor/Construction Manager designates a construction emergency response team in the plan. The purpose of the Construction Emergency Response Team is to:

- a. Protect personnel from further hazard.
- b. Stop, control, or contain release of hazardous materials at the job site.
- c. Clean up the hazardous materials after the release is controlled.
- d. Treat, package, store and dispose of the released material resulting from the release.
- e. Decontaminate the area and equipment.

An incident commander leads the Construction ERT and represents the General Contractor/Construction Manager. The purpose of the incident commander is to provide:

- f. Overall authority and control of the emergency situation.
- g. Oversight and direction of employees, incident response team members and the public.
- h. Technical direction of and responsibility for actions to assess, mitigate and clean up the spill, dispose of the hazardous wastes and decontaminate the equipment and area.
- i. Coordination with outside responders.
- j. Notify Owner of environmental incidents.
- k. Notification of outside agencies if Owner's Project Manager is unavailable.
- l. Protection of job site facilities.

The Construction ERT will consist of at least eight members, including an Emergency Coordinator, supervisors and technicians who must pass annual physical examinations to ensure employees can use respiratory protection and provide unrestricted lifting. A 40 hour training certification, consistent with 29CFR 1910.120 (e)(3) is required. If the site ERT coordinator agrees, construction emergency response can use existing ERT resources at an established manufacturing site.

5.3.12. PPEIRP - EVACUATION PROCEDURES

The procedures describe evacuation initiation, evacuation routes, assembly areas and means for accounting for personnel. Due to the variable staffing, it is recommended that a sweeps system be used. Staff with authority to evacuate shall be specified. Owner Construction EHS or Site EHS will develop evacuation routes and assembly areas.

5.3.13. PPEIRP - HANDLING OF INCIDENT RESPONSE DEBRIS

The plan must specify means for collecting and containerizing debris and clean up material generated during an environmental incident. Contaminated soil must be excavated and underlying soil must be sampled to verify clean-up. Results are given to Construction EHS or Site EHS and they will specify procedures to label, store and arrange for debris disposal. A container matrix can be developed for the types of debris and the appropriate containers (e.g., poly containers for corrosive, closeable metal drums for fuels and solvents, poly lined roll-off dumpsters for large quantities of fuel contaminated soils, etc.). Owner will manage characterization and disposition of wastes from releases. This waste shall be managed per the requirements of the HWMP and SWMP.

5.3.14. PPEIRP - TRAINING PROGRAM

The General Contractor/Construction Manager will provide classroom and on-the-job training and operating instructions to personnel involved in the handling, operation, and maintenance and management of hazardous materials, including the specifics of the incident response plan. Supervisors must complete checklists to document training and maintain for 3 years after the employee leaves the site.

Formal classroom training provides an informational overview of safe storage and handling procedures for oils, materials, or wastes encountered at the job site. The general classroom course includes at a minimum:

- a. Procedures for assuring personnel safety.
- b. Procedures for preventing incidents.
- c. Procedures for incident/emergency response to hazardous materials, including oil products and hazardous wastes.
- d. Incident containment and cleanup.
- e. Incident reporting.
- f. Procedures for spilled hazardous materials disposal.
- g. Proper storage handling of hazardous materials.
- h. Governmental regulations.
- i. Procedures for incident/emergency response.

On-the-job training is provided as required by the supervisor responsible for the specific area where an employee works. Initial on-the-job training is provided to the new employee, with periodic updates as required. The emphasis of initial on-the-job training is as follows:

- j. Providing information on routine duties of the job position.
- k. Incident prevention.
- l. Location and use of personal protective equipment and emergency equipment.

- m. Incident/emergency response measures.
- n. Site-specific information for individual hazardous materials storage use, operations and safety.
- o. Where the project extends beyond 12 months following the initial on-the-job training, employees involved in duties related to hazardous materials will have an annual review. The review will include:
 - i. Any updating required to address changes in operations and procedures.
 - ii. Discussions of significant hazardous materials-related incidents that occurred during the past year.
 - iii. Any updating required to reflect equipment modifications and changes.

The checklist documenting the training completed by the employee should be maintained for 3 years after the date an employee last worked at the site.

5.3.15. PPEIRP - PLAN MAINTENANCE

The General Contractor/Construction Manager must be updated as site characteristics change, including culvert and storm drain structure installations, re-grading activities which modify release routes, road reconfigurations which modifies evacuation procedures, change in the nature or quantity of hazardous materials used on the site and addition of significant new release routes (such as roof drains and sumps as buildings approach completion).

SECTION 5.4: SOLID WASTE MANAGEMENT PLAN (SWMP)

5.4.1. SWMP - PURPOSE

The purpose of the Solid Waste Management Plan (SWMP) is to manage solid waste associated with on-site construction and build-out activities.

This plan is meant to comply with government and Owner standards, save money, protect the environment by limiting the potential for pollution and conserve material resources. Review the Chemical Waste Management Plan and the Hazardous Material Control Plans while creating the SWMP.

Recyclable solid waste can be segregated or co-mingled. Trash must be segregated at the source. A minimum requirement of at least 90% of construction-generated debris to meet the USGBC LEED (Leadership in Energy and Environmental Design)-NC Criteria for diversion of construction waste management. Credited recycled materials do not include alternative daily cover, soil and rock from excavation activity. Solid waste collection bins must be placed in close proximity to projects and surrounding areas must remain debris-free. The following physical bin requirements are:

- a. Weather resistant labels with contrasting colors at accessible ends of containers.
- b. Covered if metal or general trash bins, but local regulations may require other bins to be covered.
- c. Use of platforms/dock to mitigate safety hazards associated with placing solid waste into bins.

Waste material is segregated for reuse, recycling and disposal. The table below (**Table 7**) illustrates waste streams for disposition of solid waste.

Solid waste hauling and data reporting requires:

- d. General Contractor to develop agreement with solid waste hauler
- e. Solid waste hauler to provide shipping data on a regular basis to General Contractor
- f. General Contractor to provide solid waste data to Owner EHS, monthly. Reports are to be submitted by the 10th of the month following the end of the reporting month

Table 7. Waste streams for disposition of solid waste

Year	Project	CATEGORY	January	February	March
	Project Name	Fiber Recycled (tons (2000 lbs per ton))			
	Project Name	Paper Recycled (tons (2000 lbs per ton))			
	Project Name	Cardboard Recycled (tons (2000 lbs per ton))			
	Project Name	Comingled Recycled waste (tons (2000 lbs per ton)) (defined per site in the definitions)			
	Project Name	Metal Recycled (tons (2000 lbs per ton))			
	Project Name	Plastic Recycled (tons (2000 lbs per ton))			
	Project Name	Wood Recycled (tons (2000 lbs per ton))			
	Project Name	E-Waste Recycled (tons (2000 lbs per ton))			
	Project Name	Glass Recycled (tons (2000 lbs per ton))			
	Project Name	Organics Recycled (tons (2000 lbs per ton))			
	Project Name	Other Recycled (tons (2000 lbs per ton)) – concrete, asphalt, etc.			
	Project Name	Solid Waste Donations (tons (2000 lbs per ton))			
	Project Name	Total Landfilled (tons (2000 lbs per ton))			
	Project Name	Total Recycled (tons (2000 lbs per ton))			
	Project Name	Total Incinerated (tons (2000 lbs per ton))			
	Project Name	Total Burned for Energy (tons (2000 lbs per ton))			
	Project Name	Revenue Generated (\$)			

5.4.2. SWMP - APPLICABILITY

Utilize the following Solid Waste Management Plan to establish a process for collecting and segregating solid waste generated by construction activities.

- a. Recyclable solid waste can either be segregated or co-mingled depending on local infrastructure.
- b. If segregating solid waste, it should be segregated as follows:
 - i. Wood
 - ii. Cardboards
 - iii. Scrap Metal - Segregation of metal items by type (wire, copper, stainless steel, etc.) will result in higher revenues
 - iv. Hard Plastics
 - v. Concrete
 - vi. Asphalt
 - vii. Glass
 - viii. Drywall
 - ix. Landfill/General Trash
 - x. Carpeting Scraps for Recycle
 - xi. Soft plastics (example: Styrofoam, packaging films)
 - xii. Green Waste (example: land clearing debris).
- c. Solid waste collection bins must be placed within close proximity to projects to enable ease of use. Bins may need to be moved to support the project as it progresses.
- d. Area around bins to remain debris-free through the establishment of routine housekeeping practices.

- e. Physical Bin Requirements:
 - i. Labeled
 - Affixed/placed at accessible ends of containers
 - Contrasting colors
 - Wind and Weather resistant (example: magnetic, wooden A-frame, etc.).
 - ii. Covered – Applies to metal and general trash bins. Local regulations may require the covering of other bins.
 - iii. Utilization of platforms/dock as needed to mitigate safety hazard associated with placing solid waste into bins.

5.4.3. SWMP - SOLID WASTE HAULING AND DATA REPORTING

- a. General Contractor to develop agreement with solid waste hauler.
- b. Solid waste hauler to provide shipping data on a regular basis to General Contractor.
- c. General Contractor to provide solid waste data to Intel EHS, or other Intel designated individual, on a monthly basis. Reports are to be submitted by the 10th of the month following the end of the reporting month.

For each project, a minimum requirement of at least 90% of construction-generated debris (measured by weight) to meet the USGBC LEED (Leadership in Energy and Environmental Design)-NC Criteria for diversion of construction waste management. All recycled materials will be credited toward the recycling goal EXCEPT alternative daily cover, soil and rock from excavation activity.

Procurement and work management practices can influence the success of achieving maximum recycling and reuse of materials. Where landfill disposal costs are high, more effort in processing and separating waste materials can result in significant cost savings. All of these factors will be considered when implementing the SWMP.

Appendices R-T can also be used as “in-field” checklists to ensure compliance with this plan.

5.4.4. SWMP - SOLID WASTE REDUCTION STRATEGIES

The General Contractor/Construction Manager is to implement all work activities while minimizing solid waste. The following activities encourage source reduction of solid waste:

- a. Alter purchasing practices to reduce waste by buying in bulk and monitoring unused supplies.
- b. In landscaping design, avoid unnecessary clearing of trees. Chip roots and branches on-site.
- c. Request minimum packaging or require suppliers to remove and handle packaging (unless packaging reuse value is high).
- d. Minimize excessive materials used and wasted.
- e. Use framing components manufactured off-site.
- f. Reuse excess lumber in the construction process.
- g. Secure on-site roll-off boxes to discourage unauthorized dumping.
- h. Ensure that materials are measured to avoid excessive end cuts.
- i. Asphalt and concrete wastes (including concrete blocks) can be ground and crushed on-site. Some reuse options do not require processing of crushed material.
- j. Waste products can be source separated to produce more marketable loads. Bins or boxes shall be designated for various product types. Plans can be coordinated with CPM schedules. Research on end-use markets before project begins can result in good savings.

- k. Local refuse haulers are good resources for information about how to recycle different wastes.
- l. Local waste exchange can be contracted to determine what products are in demand for exchange.
- m. Instructing all on-site personnel regarding appropriate procedures will lead to higher levels of material recovery.

Appendix R: Solid Waste Reduction Strategies is included for reference.

5.4.5. SWMP - SOLID WASTE ESTIMATES - GREEN FIELD

The General Contractor/Construction Manager is responsible for performing an evaluation of potential waste materials and determining the feasibility of recycling the wastes identified. The evaluation will result in a project recycling plan, including identification of markets for the recycled material and waste disposal facilities. Specifically, the evaluation should address the following:

- a. Estimate Amount of Solid Waste to be recovered.
The General Contractor/Construction Manager is responsible for estimating the amount of material to be recovered. This is accomplished by:
 - i. Determining the potential amount for re-use at construction site.
 - ii. Determining the volume available for market.
 - iii. Determining the volume available for disposal.
- b. Determine Existing Solid Waste Practices.
The General Contractor/Construction Manager will review any existing practices for reusing, recycling and discarding solid waste. For sustaining operations they will determine existing practices, such as recycling programs and goals, separation methods, reuse objectives, contracts with end-use markets, etc. For green field sites, a review of local/regional practices for construction solid waste will be conducted.

The General Contractor/Construction Manager is also responsible for performing weekly solid waste volume estimates (in cubic feet). This typically includes wood, concrete products, aluminum, ferrous metal, other non-ferrous metal, sheetrock, land clearing waste, plastics, paper and cardboard.

Appendix S: Solid Waste Estimations can be used to assist with tracking solid waste estimates for Intel construction projects.

5.4.6. SWMP - SOLID WASTE MANAGEMENT RETURN ON INVESTMENT (ROI)

The General Contractor/Construction Manager is required to locate markets for wood, asphalt, concrete products, aluminum, ferrous metal, other non-ferrous metal, sheetrock, land clearing waste, plastics, paper and cardboard. Determine current unit prices and product specifications required for scrap and resale.

- a. Determine Disposal Rates and Amounts Reused On-site.
The General Contractor/Construction Manager will be responsible for contacting local landfill disposal sites for current rates and determining those raw materials likely to be re-used on the site.
- b. Estimate Costs to Recycle and Revenues.
The General Contractor/Construction Manager will be responsible for estimating labor, material, equipment, hauling and disposal costs and revenues from reuse and sold recycled materials.

Appendix T: Determining Solid Waste Management Return on Investment can be used to assist with ROI evaluations for Intel construction projects.

5.4.7. SWMP - SOLID WASTE DISPOSITION AND TOOL DISPOSITION

The General Contractor/Construction Manager must prepare a recycling proposal that includes a ROI summary, reviewed by the Owner Project Manager. If approved, the General Contractor/Construction Manager will issue purchase orders and contracts for construction solid waste processing, storage, transportation, end-use markets and final disposal. Final disposition arrangements must be coordinated with Owner's Construction EHS or Site EHS personnel. The contractor is to use Owner qualified Scrap Suppliers for Scrap SOW.

5.4.8. SWMP - SOLID WASTE MANAGEMENT PLAN IMPLEMENTATION

The General Contractor/Construction Manager shall find locations for solid waste bins, boxes and staging areas, and ensure that contractors and subcontractors are aware of requirements and resources available for implementing the SWMP. He/she will complete the following:

- a. Provide signs on bins or containers describing specific materials to be recovered.
- b. Communicate location of materials, methods separation and processes, locate storage areas.
- c. Define contractors and subcontractors' responsibilities in regards to reusing, recycling and disposing of waste materials.

5.4.9. SWMP - PERMITS AND PLANS

Following is a list of plans whose requirements need to be reviewed for successful execution of an overall waste management program.

- a. Chemical Waste Management Plan
- b. Hazardous Material Control Plan.

5.4.10. SWMP - TRAINING

The General Contractor/Construction Manager is responsible for training construction managers, subcontractors and applicable personnel who will implement this plan.

5.4.11. SWMP - AUDITING

The General Contractor/Construction Manager will prepare a program report on a monthly basis submitted to Construction EHS or Site EHS by the 10th of each month. This report will provide the following types of information:

- a. Total tonnage of waste generated and recovered for reuse.
- b. Tonnage of waste recycled and capital cost recovered by recycling.
- c. Tonnage of shipped solid waste disposed and cost associated with shipping the waste.

This report will be submitted to Intel's Construction EHS or Site EHS personnel for review on a monthly basis by the 10th of each Month.

SECTION 5.5: WASTEWATER AND STORM WATER MANAGEMENT PLAN (WSWMP)

5.5.1. WSWMP - PURPOSE

The purpose of the Wastewater and Storm Water Management Plan (WSWMP) is to establish requirements and instructions for the management of construction related wastewater and storm water.

For construction that disturbs one or more acres of land (or less if part of a larger common plan of development) in the U.S., a federal National Pollutant Discharges Elimination System (NPDES) Storm Water Construction Permit or State NPDES Storm Water Construction Permit must be obtained. NPDES Permits and accompanying Storm Water Pollution Prevention Plans (SWPPP) or country-specific equivalent plan must be written. The NPDES Permit and

Plan must also be maintained/updated on-site for the duration of the project. Each project will follow the site Master Plan and incorporate any federal or state laws, property sale agreements (e.g., warranty deeds) and/or local ordinances as necessary into the project (e.g., tree mitigation measures, endangered species concerns, storm water easements, etc.).

Each contractor/subcontractor is responsible for the wastewater from construction and ensuring all storm water and wastewater regulations for local, state and federal government are met. The General Contractor/Construction Manager is responsible for storm water discharges and implementing site programs with its subcontractors to facilitate compliance with this guideline, including Best Management Practices (BMPs) and minimum performance. The General Contractor/Construction Manager may need to establish storm water and wastewater control facilities and inspections. The following are activities that generate wastewater and are subject to the requirements of this document:

- a. Dust control
- b. Clearing, grading and excavating
- c. Fire-fighting activities
- d. Truck wheel wash
- e. Wash out of concrete trucks, building, other structures
- f. Equipment cleaning
- g. Cleaning of painting equipment
- h. Pipe and process support equipment pressure testing
- i. Pipe and equipment flushing and passivation
- j. Dewatering subsurface soils
- k. Protect storm drain trenches from penetration of debris and liquids.

The GC will have a review with the Intel Site Environmental Engineer prior to any submittal for a NPDES or other water permits.

Water that comes in contact with the surface of the construction site as a result of precipitation (e.g., rain, snow, hail, ice) is considered as storm water associated with construction activity and also is subject to the requirements of this procedure.

The following are examples of construction related activities that either generate wastewater or storm water discharge that could potentially have an undesired environmental effect on water quality:

- l. Earth works (excavate, pile, fill, scrape, etc.)
- m. Washing and clean out of mobile equipment (truck wheel wash, wash out of concrete cement trucks, etc.)
- n. Washing and cleaning of structures, roads and chemical/paint application equipment (pressure washing outside of buildings, wash down pavement, cleanout of sprayers and paint brushes)
- o. Application of water to control the generation of dust from earth and aggregate traffic routes
- p. Leak testing, flushing, passivation of process support equipment and pipes (fire protection, water supply, hot water and steam, ultra-pure water, condenser/cooling/chiller water, wastewater, sanitary wastewater, storm drains)
- q. Dewatering water associated with construction activities.
- r. Metal dust and shards from cutting.

Contractor must include the following within the program coordination efforts and/or plans:

- s. Chemical approvals for all materials brought on-site
- t. Alert Owner EHS to contact municipalities for hydraulic loading to POTW prior to flushes
- u. Coordination of construction BMPs (e.g., retention/detention/sedimentation ponds) where practicable remain in place and serve as the sustaining site storm water design BMPs as a cost saving and Site Master Planning effort
- v. Coordination of construction BMPs (drainage swales, retention/detention/sedimentation ponds) with utility corridors and Site Master Planning efforts to avoid demolition during construction
- w. No discharges onto adjacent non Owner property.

5.5.2. WSWMP - ROLES AND RESPONSIBILITIES

- a. Owner:
 - i. In the US Owner and General Contractor/Construction Manager file the General Permit for Storm Water Discharges from Construction Activity (USEPA NPDES permit) - Submit Notice of Intent (NOI) to appropriate storm water agency
 - ii. Obtain copy of the permit and forward a copy on to GC
 - iii. Review GC SWPPP to ensure completeness; supply any information needed
 - iv. Work with GC to determine BMPs to be used
 - v. Conduct periodic audit of BMPs, inspection reports, etc. to ensure the SWPPP is followed
 - vi. Verify all construction is complete and final BMPs are in place
 - vii. Prepare NPDES or equivalent outside of the US/Closure Plan. Owner intends to accept sole operation of the NPDES permit; storm water pollution prevention planning including maintenance of all BMPs when site construction activities end. Stabilization practices (temporary seeding) are not possible in the summer months to the degree required in the permit; therefore, the permit must remain open and where necessary temporary BMPs maintained
 - viii. Submit Notice of Termination (NOT) upon completion of the project.
- b. General Contractor/Construction Manager:
 - ix. Ensure storm water and wastewater regulations for local, state and federal government are met.
 - x. Owner and General Contractor/Construction Manager file the General Permit for Storm Water Discharges from Construction Activity (USEPA NPDES permit) - Submit Notice of Intent (NOI) to Owner for agency submittal
 - xi. Identify a responsible person for storm water compliance
 - xii. Supply necessary information for NOI
 - xiii. Write SWPPP to cover requirements for construction activities identified in the permit
 - xiv. Ensure training of SWPPP requirements to affected personnel
 - xv. Conduct work in such a way so as to minimize/eliminate storm water run-off
 - xvi. Work with Owner to determine best BMPs and then maintain and inspect BMPs as required
 - xvii. Maintain records of all inspections
 - xviii. Assure construction activities are terminated and stabilization occurred in accordance with the NPDES Stabilization/Closure Plan
 - xix. General Contractor/Construction Manager to prepare the NOT for the construction NPDES Permit to be filed under Owner cover letter and submitted to EPA at the time when construction activities are terminated and stabilization has occurred in accordance with the NPDES Stabilization/Closure Plan. Owner accepts operation of the NPDES permit, in accordance with Federal Register/ Vol. 63, No. 31/Tuesday, February 17, 1998 / Notice 7861, when these conditions of the

Stabilization/Closure Plan are completed and finalized by field inspection and letter of acceptance. (These NOT conditions are to be included in the Minimum Performance Requirements of the Owner GC Contract)

- xx. Ensure all construction activities are complete and permanent BMPs are in place.

5.5.3. WSWMP - EXPECTATIONS AND SUCCESS CRITERIA

See **Table 8** for details.

Table 8. Wastewater and Storm Water Management Plan – Expectations and Success Criteria

Media	Owner	Regulatory Driver	Scope	Success Criteria	Verification
Water					
SWPPP	GC	CWA : General Construction NPDES	<ol style="list-style-type: none"> 1. GC will submit to Owner a NOI. 2. GC will implement all aspects of the SWPPP. 3. GC will integrate/create programs to achieve the success criteria including and not limited to silt fences and management of BMPs. 4. The GC will be a stakeholder in the EMS Storm Water (SW) sub-group. 	<ol style="list-style-type: none"> 1. No erosion/silt laden effluent will leave the site. 2. No water will leave the site with any noticeable sheen or discoloration including turbidity. Upstream turbidity equivalent to downstream turbidity. 3. Implementation of all aspects of the SWPPP including BMPs with a change control process and all other required actions. 	<ol style="list-style-type: none"> 1. SWPPP Logs. 2. SWPPP up-dated.
SWPPP	Owner	CWA : General Construction NPDES	<ol style="list-style-type: none"> 1. File NOI. 2. Owner will create SWPPP with stakeholder within the EMS SW sub-group. 3. Owner is a stakeholder in the EMS SW sub-group. 	<ol style="list-style-type: none"> 1. Assuring integration of contractors' success criteria to the overall site SWPPP. 	<ol style="list-style-type: none"> 1. Periodic review of logs/BMP effectiveness within the EMS SW sub-group.
Waste-water : Flushes	GC	Flush Permits needed to ensure conditions of the Industrial User Permit	<ol style="list-style-type: none"> 1. The GC is responsible for flushing with only approved chemicals (via the Chemical Approval Process) to approved discharge locations with volumes, durations and chemicals identified in the WCP (SIPP). 	<ol style="list-style-type: none"> 1. The GC will successfully implement and complete WCP for all flushes (SIPP). 	<ol style="list-style-type: none"> 1. Approval of the WCP and then successful execution to the plan.
Waste-water : Flushes	Owner	Flush Permits required by the municipal Industrial User Permit	<ol style="list-style-type: none"> 1. Owner will integrate flush process with the WCP known as SIPP. 2. Owner will create and maintain all discharge permits. 	<ol style="list-style-type: none"> 1. Successful integration of targets and limits into construction WCP and sustaining DMS. 	<ol style="list-style-type: none"> 1. Successful WCP. 2. Successful compliance monitoring program.

5.5.4. WSWMP - SITE PREPARATION AND EARTH WORK

Erosion and sediment control plans are required to be prepared and submitted to the local building officials for approval before site clearing, preparation or earth work can begin. At a minimum, the Erosion and Sedimentation Control Plan conforming to the provision of the NPDES requirements of the 2017 EPA Construction general permit must be met and shall be evaluated during inspections. Key elements include:

- a. Erosion control measures - vegetative buffers, mulching, netting/mats/blankets, temporary seeding, permanent seeding, sod stabilization on stock or spoil piles of dirt; cuts into the sides of earth embankments and sloping earth surfaces.
- b. Sediment controls - silt fencing, straw bales/bio bales, sediment traps, sediment basins, storm inlet protection, drainage swales, check dams, contour furrows, terracing, pipe slope drains, rock outlets to protect the sediment from entering into creeks, rivers, lakes, storm sewers or drainage ditches.
- c. Erosion and sediment control measures shall be used as necessary for run-off and run-on.
- d. Erosion and sediment control measures shall as a minimum be inspected once a week between storm events and daily during and immediately following storm events. A log shall be kept recording the inspections including:
 - i. name of the inspector
 - ii. date and time of the inspection
 - iii. weather conditions at the time of the inspection
 - iv. any erosion and sediment control measures that failed or need of maintenance/repair
 - v. date, time and name of individual notified to make the repairs or perform maintenance
- e. When applying water to the non-paved roads and construction areas, the volume of water shall not result in excess water running off into creeks, storm drains or lakes.

See **Appendix U: Site Planning Activities Checklist.**

See **Appendix V: Area Preparation For Erosion/Sediment Control Checklist.**

See **Appendix W: Erosion/Sediment Control Sample Inspection Log.**

5.5.5. WSWMP - WASHING AND CLEAN OUT OF MOBILE EQUIPMENT

Construction includes several of the following activities associated with the washing and cleanout of mobile equipment:

- a. Truck wheel wash prior to exiting the site and entering paved public roads
- b. Concrete cement trucks and pumper truck exterior washing and interior wash out
- c. Heavy earth moving equipment high pressure water washing to maintain/repair or prior to removal from site.

Washing and clean out of mobile equipment can discharge petroleum products into wastewater, so washing must occur in posted designated areas that are communicated to truck drivers along with washing procedures. The wastewater shall not be discharged to municipal sanitary, industrial, or storm sewer systems or creeks, wetlands, rivers, lakes or drainage basins. Areas shall be lined to prevent soil contamination and shall be large enough to hold waste water and precipitation (if applicable).

See **Appendix X: Area Preparation For Mobile Equipment Washing & Cleaning Checklist.**

5.5.6. WSWMP - WASHING OF STRUCTURES AND SMALL EQUIPMENT

Posted in a conspicuous location, exterior structure washing, as final cleaning or sealant or coating preparation, in addition to sealant or coating equipment cleaning, generates wastewater. Key elements to be addressed are:

- a. Washing and cleanout areas and usage procedure have been communicated to truck drivers
- b. The wastewater cannot be discharged into municipal sanitary, industrial or storm sewer system and will not come into contact with soil
- c. The wastewater cannot be disposed of on the ground if it causes stains or discoloration
- d. Water based paint waste and clean up liquids shall be placed in containers, with remaining liquids shipped off-site
- e. Waste liquids containing petroleum or oil based cleaners, solvents and mineral spirits shall be placed in approved containers and managed as a waste for off-site.

See **Appendix Y: Area Preparation For Small Equipment Washing & Cleaning Checklist.**

5.5.7. WSWMP - PASSIVATION, LEAK TESTING AND FLUSHING OF PROCESS SUPPORT SYSTEMS

Passivation, leak testing and flushing prior to placing equipment and piping into service generates wastewater. The equipment is associated with:

- a. Fire protection
- b. Potable water
- c. Ultra-pure water
- d. Boiler hot water/steam
- e. Chilled water
- f. Condenser/cooling tower
- g. Wet scrubber
- h. Wastewater collection/treatment.

To ensure proper wastewater management, the Contractor must consider the following prior to performing passivation, leak testing and flushing activities:

- i. Understand the volume of wastewater and the rate produced since it can be very high
- j. Determine physical wastewater provisions and necessary approval(s) for wastewater if it is being discharged to local sanitary sewer system
- k. Comprehend any detergents, biocides, corrosion inhibitors or other chemicals in the wastewater
- l. If discharged to the sanitary sewer, the discharge must be approved by Construction or Site EHS and may require testing prior to discharge
- m. Treatment may be required prior to discharge but dilution is not an acceptable treatment.

Many sites have "Flush Permits" that are required for construction related wastewater discharges including those discussed above as well as tool install/qualification, etc.

See **Appendix Z: Area Preparation For Leak Testing, Flushing & Passivation Of Systems Checklist.**

Contractors must be familiar with and act in accordance with site flush permit requirements prior to any wastewater discharge.

Local conditions, excavation depth and type/use of the structure to be built below grade determine if temporary or permanent dewatering is needed. Consider:

- n. Any preexisting conditions that contaminated the site's groundwater; the options for the water management may be limited
- o. State or local requirements may require permitting and dictate water storage and disposal
- p. Adequate provisions to store and discharge the water without causing on-site or off-site flooding, erosion and sediment control issues
- q. If dewatering of subsurface solids is required, there is a place to pump water for on-site retention or off-site disposal.

5.5.8. WSWMP - RECORD KEEPING

The following records (if applicable) shall be maintained for at least three years:

- a. All records used to complete NPDES Permit Application and any supplemental information, if applicable
- b. NPDES Monitoring Records, if applicable
- c. Calibration and Maintenance Records
- d. Original Strip Chart Recordings for Continuous Monitoring Instrumentation
- e. Reports required by Permits, Environmental Impact Statements, or other agency mandates or Intel commitments.

SECTION 6 – APPENDICES

APPENDIX A: SIGNAGE AND FORMS EXAMPLES
CHECK WITH SITE EHS FOR SITE SPECIFIC TEMPLATES

BARRICADING

DANGER KEEP OUT	CAUTION DO NOT ENTER WITHOUT PERMISSION
Company: Date Erected: Supervisor Name: Duration of Barricade: Contact Number: Nature of Hazard:	Company: Date Erected: Supervisor Name: Duration of Barricade: Contact Number: Nature of Hazard:

OVERHEAD WORK



PRESSURE TEST GENERAL



Pressure Test In Progress



Company Name: _____

Contact Person: _____

Phone: _____ Pager: _____

Start Date: _____ Finish Date: _____

Start Time: _____ Finish Time: _____

Size and Type of Material(s) Being Tested: _____

Type of Test: Pneumatic _____ Hydraulic: _____

Test Pressure: _____ Test Duration: _____

Test Media: _____

Location of Test: _____

APPENDIX B: ENERGY CONTROL PROCEDURE TEMPLATE





Example Energy Control Procedure Template					
Equipment ID:	Mfgr:		Model #:		ID #:
Equipment Location(s):			Date Performed:		
Task(s) To Be Performed:					
Name of Person Performing Assessment:					
A. ENERGY FORM: (CHECK ALL THAT APPLY)					
<input type="checkbox"/> 1. Electrical <input type="checkbox"/> a. Low Voltage (50-600V) <input type="checkbox"/> b. High Voltage (600V>) <input type="checkbox"/> 2. Chemical - Explosion, pressure, extreme heat, fire, corrosive, reactive, oxidizer, toxic	<input type="checkbox"/> 3. Pressure (pneumatic/hydraulic) <input type="checkbox"/> 4. Vacuum <input type="checkbox"/> 5. Mechanical - capable of crushing, pinching, cutting, snagging, striking <input type="checkbox"/> 6. Thermal - High Temperature - surface temperature, hot liquids, steam <input type="checkbox"/> 7. Thermal - Cryogenic - Contact with super cold surface or with a cryogenic liquid <input type="checkbox"/> 8. Ionizing Radiation	<input type="checkbox"/> 9. Non-ionizing Radiation <input type="checkbox"/> a. Ultraviolet <input type="checkbox"/> b. Infrared <input type="checkbox"/> c. RF/Microwave <input type="checkbox"/> d. Laser <input type="checkbox"/> e. Magnetic Fields <input type="checkbox"/> 10. Stored - Flywheels, springs, differences in elevation, elevated parts that could drop, capacitors, batteries			
B. BASIC PROCEDURES					
Lockout Procedure <input type="checkbox"/> 1. Notify all affected personnel of LOTO. <input type="checkbox"/> 2. Turn off power at disconnect points listed in C.1 <input type="checkbox"/> 3. LOTO or tag each energy control point listed in Column C1. <input type="checkbox"/> 4. Dissipate/disconnect any stored energy. See Column C2 { <input type="checkbox"/> N/A}. <input type="checkbox"/> 5. Block any mechanical parts, remove any mechanical links. Lock blocking in place. See Column C.3 { <input type="checkbox"/> N/A}. <input type="checkbox"/> 6. Verify personnel clear of hazards. <input type="checkbox"/> 7. Verify no hazardous energy. Use circuit tester/meter if electricity is involved. See column C.4 { <input type="checkbox"/> N/A}. <input type="checkbox"/> 8. Attempt to re-start machinery or re-energize equipment through normal means. Return switch back to OFF position. <input type="checkbox"/> 9. Perform required work.			Procedure To Return Tool To Operation <input type="checkbox"/> 10. Verify Danger Zone is clear of equipment, workers, tools, and test equipment. <input type="checkbox"/> 11. Unlock and remove any blocking devices; remove linkages. <input type="checkbox"/> 12. Reposition any safety devices. <input type="checkbox"/> 13. Warn workers to stay clear of area. <input type="checkbox"/> 14. Remove all locks and tags from energy control points. <input type="checkbox"/> 15. Verify area clear of personnel. <input type="checkbox"/> 16. Re-start/re-energize the equipment. <input type="checkbox"/> 17. Notify all affected and other persons that the lockout has been cleared.		
C. SPECIFIC PROCEDURES					
Note: Use as reference documents (ex. Piping and Instrumentation Diagram) to identify the appropriate lock out points and normal position of system controls.					
Hazardous Energy (Specify form & values including names if for chemical)	C.1 Specific Lockout Locations	C.2 Dissipate Stored Energy At These Points	C.3 Block These Parts/Remove Linkages	C.4 Verify No Residual Energy By These Methods	
SHIFT CHANGES: If this procedure lasts more than one work shift, the incoming shift will apply their locks and tags before the departing shift removes their locks and tags or follow specific written Department procedures.					

APPENDIX C: ABANDONED LOCK REMOVAL FORM

Sample Abandoned Lock removal Form			
CONTROL OF HAZARDOUS ENERGIES ABANDON LOCK REMOVAL FORM			
<p><i>This form is to be used any time a Lockout/Tagout (LOTO) device is to be removed by someone other than the person who placed the LOTO device. The person removing the LOTO device must be directed to do so by management. Failure to follow and document the appropriate steps to remove a LOTO device can result in disciplinary action up to and including termination.</i></p>			
DATE:			TIME:
1.	Location of LOTO device that is to be removed :		
2.	Name of LOTO device owner whose lock/tag is to be removed:		
3.	LOTO device owner's extension/pager:		
4.	LOTO device owner's First-Line Supervisor or On-Shift Supervisor:		
5.	Document attempt to contact LOTO device owner.		
	DATE/TIME	METHOD OF ATTEMPTED CONTACT	RESULT
1.			
2.			
6.	Reason for removing lock (e.g. LOTO device owner called in sick, LOTO device owner forgot to remove lock before leaving site, etc.)		
7.	Evaluate the entire affected system to ensure employee's safety before LOTO device is removed. LOTO device(s) removed by:		
	Removed by (Print):		Observed by (Print):
	Supervisor's (or designee) Signature:		Authorized Employee's Signature:
	Date/Time::		Date/Time:
8.	EHS Representative informed (i.e. email or phone call/message) that a LOTO device has been removed within 24 hours of removal.		
	EHS Representative Notified:		
	Date:		Time:
<p>Send Notification of Lock Removal to the following people by e-mail :</p> <p><i>Person whose lock has been removed</i></p> <p><i>Supervisor of person whose lock has been removed</i></p>			

APPENDIX D: CHEMICAL RISK ASSESSMENT TEMPLATE

Chemical Risk Assessment No:			
Chemical Name:			
Area this assessment is valid for (Location / Client / Area):		Date of Assessment:	
Describe the activity or work process.			
Location of process being carried out?			
Identify the persons at risk:		Operator (including trainees) <input type="checkbox"/>	Other Contractors <input type="checkbox"/>
		Public (including other campus occupants) <input type="checkbox"/>	
Name the substance involved in the process and its manufacturer. <i>(A copy of a current safety data sheet for this substance should be attached to this assessment)</i>			
Classification (state the category of danger)			
<input type="checkbox"/> Very Toxic	<input type="checkbox"/> Toxic	<input type="checkbox"/> Irritant	<input type="checkbox"/> Extremely Flammable
<input type="checkbox"/> Corrosive	<input type="checkbox"/> Harmful	<input type="checkbox"/> Sensitising	<input type="checkbox"/> Highly Flammable
		<input type="checkbox"/> Biological	<input type="checkbox"/> Flammable
		<input type="checkbox"/> Oxidising	<input type="checkbox"/> Environmental
Hazard Type			
<input type="checkbox"/> Gas	<input type="checkbox"/> Vapour	<input type="checkbox"/> Mist	<input type="checkbox"/> Fume
<input type="checkbox"/> Dust	<input type="checkbox"/> Liquid	<input type="checkbox"/> Solid	Other (State) _____
Route of Exposure			
<input type="checkbox"/> Inhalation	<input type="checkbox"/> Skin	<input type="checkbox"/> Eyes	<input type="checkbox"/> Ingestion
Other (State) _____			
Workplace Exposure Limits (WELs) please indicate n/a where not applicable			
Long-term exposure level (8hrTWA):		Short-term exposure level (15 mins):	
State the Risks to Health from Identified Hazards			
Physical and chemical hazards:			
Health effect on humans:			
Control Measures: <i>(for example extraction, ventilation, training, supervision). Include special measures for vulnerable groups, such as disabled people and pregnant workers. Take account of those substances that are produced from activities undertaken by another employer's employees.</i>			
Is health surveillance or monitoring required?			
		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Personal Protective Equipment (state type and standard)			
<input type="checkbox"/>		<input type="checkbox"/>	
<input type="checkbox"/>		<input type="checkbox"/>	Safety eye protection must be worn in case of diesel splash.

 <input type="checkbox"/>	Gloves Consumer use:	 <input type="checkbox"/>	
 <input type="checkbox"/>		 <input type="checkbox"/>	

First Aid Measures

General:
 Skin contact:
 Eye contact:

Storage
 und

Disposal of Substances & Contaminated Containers

Hazardous Waste Skip Return to Depot Return to Supplier Other
 (If Other Please State)

Is exposure adequately controlled?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
------------------------------------	------------------------------	-----------------------------

Risk Rating Following Control Measures

High Medium Low

Assessed by:	Review Date:
--------------	--------------

APPENDIX E: SITE PLANNING ACTIVITIES
(PAGE 1 OF 2)

1. Identify whether the project will involve any activities that may generate significant amounts of air pollutants. Mark each activity identified below:

- Site preparation
- Vehicular traffic
- Construction material surface preparation & coating
- Mobile equipment
- Demolition
- (Other) _____
- _____
- _____

2. Determine what agency approvals, permits or notifications are required for any of the activities listed above.

3. Identify an owner for each permit and ensure required permits are obtained.

Permit:	_____	Owner:	_____
Application initiated:	_____	Application reviewed by:	GC _____ Intel _____
Application submitted:	_____	Permit Issued:	_____
Permit:	_____	Owner:	_____
Application initiated:	_____	Application reviewed by:	GC _____ Intel _____
Application submitted:	_____	Permit Issued:	_____
Permit:	_____	Owner:	_____
Application initiated:	_____	Application reviewed by:	GC _____ Intel _____
Application submitted:	_____	Permit Issued:	_____
Permit:	_____	Owner:	_____
Application initiated:	_____	Application reviewed by:	GC _____ Intel _____
Application submitted:	_____	Permit Issued:	_____

APPENDIX E - SITE PLANNING ACTIVITIES (CONTINUED)

(PAGE 2 OF 2)

4. Verify the necessary performance controls have been established, such as:

- Indicators to monitor and demonstrate compliance with the Wastewater and Storm Water Management Plan
- Log books required to record inspections
- Established inspection criteria with owner identified

**APPENDIX F: AREA WATER APPLICATION LOG SHEET
EXAMPLE**

THIS LOG IS TO REMAIN IN THE CAB OF THE WATERING TRUCK OR OTHERWISE ON-SITE AT ALL TIMES AND IT MUST BE AVAILABLE FOR INSPECTION AT ALL TIMES.

EACH TIME WATER IS APPLIED, THE WATER TRUCK DRIVER IS REQUIRED TO RECORD INFORMATION IN THE SPACES PROVIDED BELOW.

Date	Start Time	Stop Time	Amount of water used (gallons)	Area(s) Watered	Truck Driver Initials

WHEN ALL AVAILABLE SPACES ON THIS LOG SHEET HAVE BEEN COMPLETED, DELIVER THIS SHEET TO THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER OFFICE AND START A NEW SHEET.

**APPENDIX G: CHEMICAL APPLICATION CHECKLIST
EXAMPLE**

PRIOR TO THE SHIPMENT OF CHEMICALS TO THE SITE FOR APPLICATION, THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER WILL VERIFY THAT:

- 1. Intel has approved the use of the chemical, as indicated by a Hazardous Material Information Sheet showing approval for this specific use of the chemical.
- 2. If the chemical must be applied only by trained and licensed/permitted individuals, obtain a copy of the permit for each individual who will be applying the chemical and submit a copy to the General Contractor/Construction Manager.

PRIOR TO APPLICATION OF ANY CHEMICALS BY THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER OR ANY SUBCONTRACTOR, THE INDIVIDUAL APPLYING CHEMICALS WILL:

- 3. Check wind speed and direction. The chemicals should not be applied when the wind is blowing and there is a threat to sensitive receptors (e.g., employees, residents, local creeks, lakes, estuaries, wetlands or protected flora or fauna, etc.).
- 4. Check weather forecast. The chemicals should not be applied when it is raining or when rain is forecasted and there is a threat to sensitive receptors (e.g., employees, residents, local creeks, lakes, estuaries, wetlands or protected flora or fauna, etc.).
- 5. Read and understand all instructions for the application of the chemical. The chemicals should not be applied at a rate greater than specified by the manufacturer, or as stated in the specification.
- 6. Ensure area is clear of any personnel or animals that may be affected by the chemical per manufacturer's instructions.

**APPENDIX H: SURFACE PREPARATION AND COATING CHECKLIST
EXAMPLE**

PRIOR TO THE SHIPMENT OF CHEMICALS OR OTHER MATERIALS TO BE USED FOR SURFACE PREPARATION OR COATING TO THE SITE, THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER WILL VERIFY:

1. Intel has approved the use of the chemical, as indicated by a Hazardous Material Information Sheet showing approval for this specific use of the chemical.

PRIOR TO APPLICATION OF ANY CHEMICALS BY THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER OR ANY SUBCONTRACTOR, THE INDIVIDUAL APPLYING CHEMICALS WILL:

2. Ensure that sheeting material or other protective measures have been set in place to separate the work area from the rest of the site. Ensure that this has been established in a manner to prevent dust that is generated during bead/sand blasting, or over spray from painting activities, from traveling beyond the immediate work area.
3. Check wind speed and direction. Surface preparation and coating activities that are being performed outside and not within enclosed areas should not be performed during windy conditions. This depends on the activity being performed, the chemicals being used, strength of the wind and the location and distance from the work area to the sensitive receptors (e.g., employees, residents, local creeks, lakes, estuaries, wetlands or protected flora or fauna, etc.).

**APPENDIX I: MOBILE EQUIPMENT SETUP CHECKLIST
EXAMPLE**

(Mobile equipment such as portable concrete batch plants and rock crushers are required to have permits from either the state or local agency responsible for the air pollution control program)

PRIOR TO SITE DELIVERY OF MOBILE EQUIPMENT WHICH REQUIRES EITHER STATE OR LOCAL PERMITS, THE SUBCONTRACTOR RESPONSIBLE FOR THE EQUIPMENT WILL:

- 1. Obtain all required state and local permit(s) for use of the equipment.
- 2. Provide the General Contractor/Construction Manager with a copy of the permits required.

PRIOR TO SITE ARRIVAL OF MOBILE EQUIPMENT THAT REQUIRES EITHER STATE OR LOCAL PERMITS, THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER WILL:

- 3. Obtain a copy of the permit(s) from the subcontractor providing the equipment prior to allowing the equipment onto the project site.
- 4. Independently contact the appropriate air pollution control agency to confirm that a permit is not required, if so stated by the subcontractor, and to confirm the subcontractor's compliance history.
- 5. Identify equipment setup locations that will minimize the potential for air pollutants from the equipment to travel beyond Intel's property.
- 6. Notify the subcontractor of equipment setup and operation areas.

**APPENDIX J: DEMOLITION OPERATIONS CHECKLIST
EXAMPLE**

(The demolition of buildings, tanks, piping systems, etc. can often result in the release of air pollutants. Depending on the age of the building, the materials of construction could contain asbestos or lead-based paint. Depending on the chemicals [if any] used, the duct work or pipes may contain residual chemicals of concern [e.g., arsenic in duct work, solvent or petroleum vapors in pipes]. Tanks [above, below and in-ground] also may contain materials which can release vapors or pose a potential hazardous situation when being removed)

PRIOR TO STARTING ANY DEMOLITION WORK, THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER OR SUBCONTRACTOR TO PERFORM THE WORK WILL:

- 1. Determine the characteristics of the area to be demolished, including any chemical hazards and residues (e.g., lead, asbestos, fuel, oil, hazardous chemicals, sludge).
- 2. Determine if any state or local permits are required for demolition (e.g., asbestos removal, lead removal, removal/decommissioning of underground or above ground tanks).
- 3. Ensure that if permits are required, those permits have been obtained.

IF SAND / SHOT / BEAD BLASTING IS TO BE PERFORMED:

- 4. Required control measures must be identified and put in place prior to starting work.

Sand / shot / bead blasting of metal (interior/exterior) tanks, heavy equipment and steel structures generates spent abrasive material and removed rust and paint chips. The paint being removed may contain lead, requiring that additional steps be taken to prevent the release of these materials into the atmosphere and onto the ground/surface waters. Prior to removal of any paint/primer a determination needs to be made whether the materials to be removed contain lead.

IF DISMANTLING OR DISASSEMBLY OF TANKS, PIPES, PUMPS OR VALVES IS TO BE PERFORMED:

- 5. Check for the presence of liquids, sludges or residues.
- 6. Remove any liquids, sludges or residues identified, in accordance with government, owner and contractor requirements, prior to demolition.

APPENDIX K: CONTRACTOR CHEMICAL USE REQUEST FORM

APPROVED _____ DENIED _____

EXAMPLE - CONTRACTOR

CHEMICAL USE REQUEST FORM

All chemicals must be approved by Intel's Construction Environmental, Health & Safety (EHS) or Site EHS personnel PRIOR TO being brought to any Intel project site or facility.

This form must be completed by both the chemical use requester and Intel's EHS. It must be accompanied by an up-to-date Safety Data Sheet (SDS) for any new chemical or new chemical use situation. For further information, contact Intel's Construction EHS or Site EHS personnel.

When this approval form and the MSDS are returned they must be kept on file in the chemical requester's office along with an inventory of all chemicals in use by the requester.

REQUESTER:

NAME: _____ COMPANY: _____ DATE: _____

PHONE: _____

INTEL SPONSOR NAME: _____ M/S: _____

PROJECT NAME (IF APPLICABLE): _____

INTEL SITE OF PROJECT: Specify: _____

CHEMICAL USE:

LOCATION OF PROPOSED CHEMICAL USE: _____

DEPT: _____

STORAGE LOCATION: _____

TRADE NAME (MSDS) OF THE CHEMICAL: _____

COMMON NAME OF THE CHEMICAL: _____

SUPPLIER: _____ MANUFACTURER: _____

CHECK ONE: ONE TIME USE: ROUTINE USE:

UNUSED CHEMICAL WILL BE COMPLETELY REMOVED/USED PRIOR TO INTEL OCCUPANCY: YES: NO:

CHEMICAL USE COULD OVERLAP INTEL OCCUPANCY: YES: NO:

CHEMICAL WILL BE IN CONTINUAL USE AFTER CONSTRUCTION: YES: NO:

DURATION OF PROJECT: _____

USE VOLUME AVERAGE: _____ VOLUME STORAGE: _____

DESCRIPTION OF USE (Mandatory for Approval): _____

SAFETY CONTROLS, PROCESS/EQUIPMENT USED IN:

WASTE DISPOSAL METHOD / LOCATION (IF APPLICABLE): _____

EHS APPROVAL:

INDUSTRIAL HYGIENIST:

DATE:

COMMENTS:

ENVIRONMENTAL ENGINEER:

DATE:

COMMENTS:

SAFETY ENGINEER (IF NEEDED):

DATE:

COMMENTS:

REV. 2 - 12/09

**APPENDIX L: HAZARDOUS MATERIAL RECEIPT CHECKLIST
EXAMPLE**

1. Upon arrival at the hazardous materials receiving area take the following actions prior to accepting the shipment:

- Verify the hazardous material has been approved for use at the site.
- Visually inspect the shipment to make sure:
 - a. The contents have not been damaged and no hazardous material has been spilled or leaked from their shipping containers.
 - b. The shipping containers have proper identification and labeling.

If any of the verifications or inspections are unsatisfactory, do not accept the shipment. Contact the shipper/supplier to resolve discrepancies, prior to accepting the shipment.

2. After satisfactorily completing receipt inspections and reviews, accept the shipment and complete the following:

- Log the receipt of hazardous material into the site tracking system with the following information:
 - a. Material type
 - b. Material quantity
 - c. Material storage locations, or if to be used upon receipt, use location

- Determine if the hazardous materials are to be placed in storage for future use or used upon receipt.

If materials are to be placed in storage:

- Verify the storage area has been setup in accordance with EHS requirements – contact Intel’s Construction EHS or Site EHS personnel with any questions.
- Arrange for transport of hazardous materials to an EHS approved storage area.

If an approved storage area is not available:

- Verify the materials receiving area meets requirements for storage of the materials until an approved storage area has been established.

If the materials are to be used upon receipt:

- Ensure personnel are available to assume control of the hazardous materials where they are to be used.
- Verify all temporary storage requirements for the area of use have been met prior to transporting hazardous materials.
- Arrange for transport of hazardous materials to the area where materials are to be used.
- If temporary storage requirements have not been met, verify the materials receiving area meets requirements for storage of the materials until temporary storage requirements have been met.

APPENDIX M: HAZARDOUS MATERIAL STORAGE CHECKLIST

Example

Following receipt and acceptance of hazardous materials on-site, those materials dispositioned for storage will be handled and stored as follows:

1. Transportation of hazardous materials:

- Trained individuals have been assigned responsibility for escorting the hazardous materials from the hazardous materials receiving area to the designated storage area.
- The method of transportation will protect against spillage, leakage or release of any hazardous materials while enroute to the storage area.
- The transportation of hazardous materials has been escorted and materials have not been left unattended.

2. Placing hazardous materials in designated hazardous material storage area:

- Area checked to ensure no incompatible materials are present.
- Adequate access, egress and aisle space is available where the hazardous materials have been placed within the storage area.
- The integrity of the container has been checked to verify there is no spillage, leakage or releases of hazardous materials.
- Lids and caps are properly installed and secure on the containers.
- Hazardous material container labeling is securely affixed to the container.
- The hazardous materials storage area is properly posted to reflect:
 - a. The hazardous materials contained within the area.
 - b. Any access and egress requirements for entry into the area.
 - c. Emergency contact information (Position and phone number).
- Security measures have been established and are in effect for the hazardous materials storage area.
- Hazardous materials inventory has been updated for the quantities of hazardous materials within the hazardous materials storage area.

Note: No more than a 30 day supply of hazardous materials will be stored on-site at any given time. The total quantity of any hazardous material on the site may impact reporting requirements for that material. Efforts should be made to minimize the amount of hazardous materials on-site at any given time.

APPENDIX N: HAZARDOUS MATERIAL DISPOSAL CHECKLIST
EXAMPLE

1. Prior to disposal of hazardous materials the contractor/subcontractor responsible for those hazardous materials will:

- Identify those materials that can be returned to storage for reuse.
- Identify those materials that can be recycled.
- Identify empty containers that have been contaminated by the hazardous materials and disposition those containers as appropriate (see Section 5.2.11).
- Identify and collect contaminated tools for decontamination.

2. Disposition of materials

- Hazardous material that has been dispositioned for return to the storage area will be handled in accordance with Appendix M. Any materials inventory should be updated to reflect the quantities of hazardous materials that have been used or returned to storage. Hazardous materials and empty storage containers that can be recycled are packaged, labeled and transported in accordance with approved procedures.
- Tools/equipment to be decontaminated have been collected, properly bagged/contained, transported to decontamination area and decontaminated in accordance with approved procedures.
- Hazardous material waste that is to be disposed of is:
 - a. Transported by trained personnel.
 - b. Transported in a manner to protect against spillage, leakage or release of any hazardous materials while enroute to the disposal area.
 - c. Properly bagged/contained, labeled and placed into the appropriate waste container.
 - d. Contactors must coordinate with Construction EHS or Site EHS personnel to dispose waste and cannot ship waste off-site independently for recycling or disposal.

**APPENDIX O: DAILY HAZARDOUS MATERIAL STORAGE AREA AND POINT OF USE AUDIT CHECKLIST
EXAMPLE**

This inspection may be conducted to verify proper use of hazardous materials on the job site.

This audit should be conducted using the following criteria:

1. Postings: Area Postings are attached and reflect the hazardous materials contained within the area, any access and egress requirements for entry into the area and emergency contact information (position and phone number).
2. Access: Adequate access, egress and aisle space is available where the hazardous materials have been placed within the storage area.
3. Integrity: The integrity of the container has been checked to verify there is no spillage, leakage or releases of hazardous materials. Lids and caps are properly installed and secure on the containers.
4. Labeling: Hazardous material container labeling is securely affixed to the container.
5. Security: Security measures have been established and are in effect for the hazardous materials storage area.
6. Material: Area checked to ensure no incompatible materials are present.

When performing audits list YES if criteria were met, NO if criteria were not met or N/A if criteria were not observed for each of the audit criteria areas. When criteria are not met a description of what was not met should be listed and an AR assigned. When the AR is closed this should be listed under the "Date Corrected" box.

Date		Location		Inspected By	
------	--	----------	--	--------------	--

	Criteria Met?	Deficiency	Action/Owner	Date Corrected
Postings				
Access				
Integrity				
Labeling				
Security				
Compatibility				

**APPENDIX P: CONTRACTOR/SUBCONTRACTOR HAZARDOUS MATERIAL CONTROL PROGRAM
COMPLIANCE AUDIT CHECKLIST
EXAMPLE**

This document serves as a performance audit for the Contractor/Subcontractor's compliance with the Hazardous Material Control Program. It is to be used as a tool for both Intel and the Contractor/Subcontractor. When completed, a copy of this document will be made available to the Contractor/Subcontractor while the Original will be maintained by Intel's Project Manager.

Contractor/Subcontractor being audited: _____

Audit Date: _____

Auditor Name: _____ Phone Number: _____

Training

Criteria Met?	Deficiency	Corrective Action	Owner	Correction Date
Program in Place				
Material developed for training				
Material meets criteria				
Training test or exercise meets objectives				
Qualified and trained instructors				
Documented attendance				

Work Area

Criteria Met?	Deficiency	Corrective Action	Owner	Correction Date
Excess chemicals are not located in work area				
Waste materials are contained and labeled				
Disposition of empty containers evident				
Access to the area posted with appropriate warnings and barricades				

Materials Area - Shipping & Receiving

Criteria Met?	Deficiency	Corrective Action	Owner	Correction Date
Sub complies with Haz Mat Plan				
Reusable & recyclable materials labeled & packaged correctly?				
Waste is not stored in work area				
Containers are maintained in good condition				
Containers are inspected prior to acceptance				
Incompatible materials are stored separately				
Emergency contact information is posted				
Controls exist to prevent any spills or leaks from leaving the storage area				
Only approved chemicals are accepted and in inventory				
Hazardous materials inventory is accurate				

**APPENDIX Q: HAZARDOUS MATERIAL WORK OBSERVATION FORM
EXAMPLE**

This observation form is used to document observations of work practiced by contractors/subcontractors using hazardous materials. These observations are conducted as spot inspections. All records of inspections are to be signed, and submitted to _____ for retention.

Observation By: _____ / _____ Date: _____
(Print Name / Signature)

Observation/Point of Use Location: _____

Hazardous Material Work Area Observation

	Criteria Met?	Deficiency	Corrective Action	Owner	Correction Date
Hazardous materials are confined within work area					
Access and egress to hazardous area is not blocked					
Emergency contact information posted					
Access and aisle space exists for chemicals stored in the work area					
Approved work plan and applicable permits are in place for hazardous activity					
PPE specified by work plan is in use					
Any monitoring specified in work plan is being performed					
Personnel in the area are aware of contingency and emergency procedures.					

Other observations/remarks: Action required: (Action and AR Owner)

APPENDIX R: SOLID WASTE REDUCTION STRATEGIES

EXAMPLE

(PAGE 1 OF 2)

(PERFORMED BY GENERAL CONTRACTOR/CONSTRUCTION MANAGER, ALL CONTRACTORS AND SUBCONTRACTORS)

Where applicable the following activities will be implemented to encourage source reduction:

1. Alter purchasing practices to reduce waste. Wherever possible, buy supplies in bulk and closely monitor unused supplies.
2. In landscaping design, avoid unnecessary clearing of trees. Chip roots and branches on-site.
3. Specify in purchase orders that suppliers deliver goods with a minimum of packaging, or require suppliers to remove and handle packaging after delivery (unless packaging reuse value is high).
4. Minimize excessive materials used, optimize use of purchased materials.
5. Use framing components manufactured off-site.
6. Reuse excess lumber in the construction process.
7. Ensure that materials are measured to avoid excessive end cuts.
8. Secure on-site roll-off boxes to discourage unauthorized dumping.
9. Asphalt and concrete wastes (including concrete block) can be ground and crushed on-site. Some reuse options require no processing of crushed material. For example, it can be used for nonstructural fill of berms and lowlands. Asphalt can be crushed and reused for asphalt pavement.
10. Waste products can be source separated to produce more marketable loads. Individual bins or boxes should be designated for various types of products.
11. Local refuse (drop box) haulers can be good resources for information about how best to recycle different types of wastes.
12. Source separation plans can be coordinated with CPM schedules to achieve optimal diversion of wastes. Research on available end-use markets before the project begins can result in good savings.
13. Local waste exchange can be contracted to determine what products are in demand for exchange.
14. Instructing all on-site personnel regarding appropriate procedures will lead to higher levels of materials recovery. For example, the use of designated containers for holding recovered materials will reduce contamination.

APPENDIX R: SOLID WASTE REDUCTION STRATEGIES
EXAMPLE
(PAGE 2 OF 2)

Table A9 provides examples of end-use markets for recycled construction solid waste. Depending on demand, the end-use markets are places that will pay for products or take them for free.

Table A9. End-Use Markets for Recycled Construction Wastes

Waste Type	End Use
Dirt	Soil, soil conditioner, landscaping
Bricks and tile	Masonry, landscaping, ornamental stone, decorative facades
Concrete, cinder blocks, rocks	Fill, roadbed aggregate, haul roads, masonry use on-site, landscaping
Asphalt	Road/bridge resurfacing, landfill haul roads, asphalt aggregate
Tar-based materials, roofing	Mixed with used asphalt for resurfacing, raw material -- reuse on-site
Ferrous pipes, roofing, flashing	Re-used, raw material -- sold as scrap
Aluminum	Re-melt, raw material -- sold as scrap
Copper	Re-used, raw material -- sold as scrap
Steel, brass	Re-used, raw material -- sold as scrap
Stumps, treetops, mixed wood and limbs	Chipped for fuel, landscaping, compost bulking, animal bedding, manufactured building products, haul roads, landscaping, re-use on construction site
Wall studs - other construction-grade lumber	Temporary or permanent framing and general construction
Framing, scraps	Chipped for fuel, landscaping, compost bulking, animal bedding, manufactured building products, landfill haul roads
Plywood, pressure-treated	May or may not be chipped for fuel, landscaping, compost bulking, animal bedding, manufactured building products, concrete forms, floor protection
Creosote-treated, laminates	End use depends on local regulations concerning chemicals in material. If use is approved uses are similar to those for other wood materials (listed above)
Used cardboard	Fuel pellets
Plaster, sheetrock	In place of sand in concrete/aggregate fill - agriculture, gypsum as raw material
Glass	In place of sand in concrete/aggregate
White goods/appliances	Scrap recyclers for crushing
Lead paint, asbestos, fiberglass, fuel tanks	None known

**APPENDIX S: SOLID WASTE ESTIMATIONS
EXAMPLE**

(Page 1 of 2)

(PERFORMED BY GENERAL CONTRACTOR/CONSTRUCTION MANAGER OR DESIGNEE)

1. Estimate the weekly volume generated of construction solid waste (in cubic feet) of wood, concrete products, aluminum, ferrous metal, other non-ferrous metal, sheetrock, land clearing waste, plastics, paper and cardboard.

Two tables are provided as guidance on estimating waste volume that is generated. **Table A10** provides guidance on the typical building material content for construction within the United States. **Table A11** provides guidance on estimating the density of construction waste materials.

Table A10. Typical Building Content in United States

Material	Percentage (%)	Volume - Cubic Yard	Density - Pounds per Cubic Yard
Steel and Iron	2.7	0.1	1090
Copper, Brass	>0	Neg	906
Lead	>0	--	--
Aluminum	0.1	--	--
Concrete	53.7	0.9	1190 - 1855
Brick & Clay	--	--	1210 - 3024
Block	21.0	0.3	1210 - 3024
Wood	22.0	1.1	400
Glass	0.2	Neg	--
Plastic	0.1	--	--
Total	100	2.4	830

Based on one ton of waste.

Table A11. Density of Typical Construction Waste Materials

Material	Density (Pounds per Cubic Foot)
Steel (Cold drawn)	489
Glass (Common)	162
Timber	38-42
Rubble, Masonry	137-156
Dry Rubble, Masonry	110-130
Brick Masonry	103-128
Earth (Excavated)	63-126
Asphalt	81

APPENDIX S: SOILD WASTE ESTIMATIONS

EXAMPLE (PAGE 2 OF 2)

2. Estimate the amount of material to be recovered:

a. Determine potential amount for re-use at construction site.

b. Determine volume available for market.

c. Determine volume available for disposal.

3. For sustaining operations, determine existing practices, such as recycling programs and goals, separation methods, re-use objectives, contracts with end-use markets, etc.

For green field sites, determine local/regional practices for construction solid waste.

**APPENDIX T: DETERMINING SOLID WASTE MANAGEMENT RETURN ON INVESTMENT
EXAMPLE**

(PERFORMED BY GENERAL CONTRACTOR/CONSTRUCTION MANAGER OR DESIGNEE)

1. Locate markets for wood, asphalt, concrete products, aluminum, ferrous metal, other non-ferrous metal, sheetrock, land clearing waste, plastics, paper and cardboard. Determine current unit prices and product specifications required for scrap and resale. Contact waste exchanges in the local area to determine needs for these materials.
2. Contact local landfill disposal sites for current rates. Determine raw materials likely to be re-used on the construction site.
3. Estimate labor, material, equipment, hauling, and disposal costs and revenues from reuse and sold recycled materials by waste material type. The following equation can be used to determine which waste products can be recovered economically.
$$[\text{Labor}\$ + \text{Material}\$ + \text{Equipment}\$ + \text{Hauling}\$ - \text{Disposal Cost}\$ \leq \text{Market Price}]$$

For re-use of raw materials, cost would be determined as replacement cost.
4. Determine if waste material will contain any Hazardous Materials per the Hazardous Material Control Plan. If no hazardous materials are contained within the solid waste material, go to step 6.

If hazardous materials are within the solid waste, determine if these materials meet the definition of hazardous waste per the Hazardous Waste Management Plan. If the solid waste does not contain hazardous waste, go to step 6.
5. If the solid waste material contains hazardous waste, process the hazardous waste in accordance with the Hazardous Waste Management Plan.
6. Issue purchase orders and contracts for construction solid waste processing, storage (roll-off boxes, bins), transportation, end-use markets and final disposal.

**APPENDIX U: SITE PLANNING ACTIVITIES CHECKLIST
EXAMPLE**

1. Identify if the project will involve any activities that generate significant amounts of wastewater or potentially have an adverse environmental effect. Mark each activity identified below.

- Site preparation or earthwork
- Mobile equipment washing or cleanout
- Washing of structures or equipment
- Leak testing, flushing, passivation
- Dewatering subsurface soils
- (Other)

2. Identify Site and adjacent water features below that could be impacted by construction activities:

- Wetlands
- Creek, river, lake, drainage ditch
- Supply or monitoring wells
- During the construction project, 5 acres or more will be disturbed
- (Other)

3. Establish erosion control and sediment control plan:

- Plan established
- General Contractor/Construction Manager review of the plan
- Intel review/approval of the plan

4. Determine what agency approvals, permits or notifications are required for any of the activities listed above:

- NPDES Storm Water Construction Permit (Required if 5 acres or more will be disturbed)

5. Identify owner for each permit and ensure required permits are obtained:

Permit: _____ Owner: _____

Application initiated: _____ Application reviewed by: GC _____ Intel _____

Application submitted: _____ Permit Issued: _____

Permit: _____ Owner: _____

Application initiated: _____ Application reviewed by: GC _____ Intel _____

Application submitted: _____ Permit Issued: _____

Permit: _____ Owner: _____

Application initiated: _____ Application reviewed by: GC _____ Intel _____

Application submitted: _____ Permit Issued: _____

Permit: _____ Owner: _____

Application initiated: _____ Application reviewed by: GC _____ Intel _____

Application submitted: _____ Permit Issued: _____

6. Verify the necessary performance controls been established, such as:

Indicators to monitor and demonstrate compliance with the Wastewater and Storm Water Management Plan

Log books required to record inspections

Inspection criteria has been established and owner identified

**APPENDIX V: AREA PREPARATION FOR EROSION/SEDIMENT CONTROL CHECKLIST
EXAMPLE**

Requirements for erosion and sediment control measures are specified in the Storm Water Pollution Prevention Plan.

1. Read the construction Storm Water Pollution Prevention Plan
2. Ensure erosion control measures have been established as specified by the plan. These measures may include:

Required In Place

- | | |
|---|--------------------------|
| Vegetative buffers | <input type="checkbox"/> |
| Mulching | <input type="checkbox"/> |
| Netting/mats/blankets | <input type="checkbox"/> |
| Temporary seeding | <input type="checkbox"/> |
| Permanent seeding | <input type="checkbox"/> |
| Sod stabilization on stock or spoil piles of dirt | <input type="checkbox"/> |
| Cuts into the sides of earth embankments | <input type="checkbox"/> |
| Sloping earth surfaces | <input type="checkbox"/> |

3. Ensure sediment control measures have been established as specified by the plan. These measures may include:

Required In Place

- | | |
|---|--------------------------|
| Silt fencing | <input type="checkbox"/> |
| Straw bales/bio bales | <input type="checkbox"/> |
| Sediment traps | <input type="checkbox"/> |
| Sediment basins | <input type="checkbox"/> |
| Storm inlet protection | <input type="checkbox"/> |
| Drainage swales | <input type="checkbox"/> |
| Check dams | <input type="checkbox"/> |
| Contour furrows | <input type="checkbox"/> |
| Terracing | <input type="checkbox"/> |
| Pipe slope drains | <input type="checkbox"/> |
| Rock outlet protection to protect the sediment from entering into creeks, rivers, lakes, storm sewers or drainage ditches | <input type="checkbox"/> |

4. Verify inspection plans have been established to ensure control measures are effective.

**APPENDIX W: EROSION/SEDIMENT CONTROL SAMPLE INSPECTION LOG
EXAMPLE**

Inspector Name	Inspection Date/Time	Current Weather conditions	Erosion/Sediment Control Deficiencies Identified	AR Owner: Name Date / Time

**APPENDIX X: AREA PREPARATION FOR MOBILE EQUIPMENT WASHING & CLEANING CHECKLIST
EXAMPLE**

1. Verify Areas have been designated by Intel's Construction EHS or site EHS personnel for washing and cleaning of mobile equipment.

Verify that each location has been:

- a. Established where resulting wastewater will not enter on-site or off-site creeks, wetlands, rivers, lakes or drainage ditches.
- b. Designed so the resulting wastewater will not be discharged into the storm sewer system.
- c. Lined to prevent construction debris from contaminating soil.
- d. Large enough to hold wash water and precipitation (if applicable) long enough to be tested and permitted for discharge to either sanitary sewer system or off-site disposal site. Note: all discharges to sanitary sewer or off-site must be arranged through Intel's Construction EHS or Site EHS personnel.
- e. Posted in conspicuous location.
2. Verify that washing and cleanout areas and usage procedures have been communicated to truck drivers and other individuals expected to use each area.

**APPENDIX Y: AREA PREPARATION FOR SMALL EQUIPMENT WASHING & CLEANING CHECKLIST
EXAMPLE**

1. Verify areas have been established for washing and cleaning small equipment. Verify that each location has been:
 - a. Established where resulting wastewater will not enter on-site or off-site creeks, wetlands, rivers, lakes or drainage ditches.
 - b. Designed so the resulting wastewater will not come into contact with soil.
 - c. Posted in conspicuous location.

2. Verify that washing and cleanout areas and usage procedures have been communicated to truck drivers and other individuals expected to use each area.

3. Water-based paint waste and clean up liquids should be placed in containers, with remaining liquids shipped off-site in manner approved by Intel.

4. Waste liquids containing petroleum or oil based cleaners, solvents, mineral spirits are not to be disposed on the ground. These liquids are to be placed in approved containers and managed as a waste for off-site disposal that must be approved by Intel.

**APPENDIX Z: AREA PREPARATION FOR LEAK TESTING, FLUSHING & PASSIVATION OF SYSTEMS
CHECKLIST
EXAMPLE**

1. Review construction and start-up plans to identify where flushing and leak testing or passivation (chemical treatment) is required before placing a system in service. Systems include:

- Fire protection
- Potable water
- Ultra-pure water
- Boiler hot water/steam
- Chilled water
- Condenser/cooling tower
- Wet scrubber
- Wastewater collection/treatment

2. If any of the activities discussed above have been identified, then verify the following control measures been established:

- A place to collect and either store or dispose of these wastewater has been established. This requires not only physical provisions to manage these waters but also requires having the necessary approval(s) from the local agency if these waters are to be discharged off-site.
- If the wastewater contains detergents, biocides, corrosion inhibitors or other additives, depending on where this wastewater will be discharged may not be acceptable without further dilution or treatment.