**{Company Name}**

**JOB HAZARD ANALYSIS – EXCAVATION ACTIVITIES**

|  |
| --- |
| **Title of Job/Operation:**  |
| **Subcontractor:** |
| **Job Number:**  |
| **Date:** |
| **Author:**  |
| **Project Description:** |

General Notes:

Prior to starting any job, a tool box meeting will be held to discuss the work phases and review the entire job. This includes identifying any hazards and discussing the safest way to complete the job while keeping the BNL population safe and out of harm’s way. Specific tools for the job are selected, sound house-keeping practices are discussed, review SDS specific for this task. Review and sign the work permit, review, and sign the JHA/SWP. Operator’s manual for any powered equipment is available and will be reviewed for proper use and safety. Check tools and GFCI daily before each use.

General Safety Rules to be applied as follows:

1. Effective safety supervision shall be present on the project whenever work is to be performed.
2. All workers must wear high visibility clothing, safety shoes and safety glasses with side shields at all times.
3. The HASP must be available onsite.
4. All employees shall be aware of the procedures in this JHA/SWP and Brookhaven National Lab rules.
5. All employees shall be aware and trained in the chemical hazards communication program (SDS, Right to Know).
6. All SDSs for proposed and used chemicals shall be on file and approved with the BNL supervisor prior to the start of work as per OSHA requirements. Provide training as required by specific SDS.
7. All PPE shall be used in accordance with applicable ANSI standards.
8. Eyewash/Shower stations will comply with current ANSI standards located within 10 seconds but no further than 100 feet from hazardous chemical use areas.
9. All employees shall be effectively trained for the tasks, which they are required to perform.
10. Any injury is to be reported to the supervisor immediately.
11. Maintain proper housekeeping throughout the project.
12. No daisy chaining of extension cords.
13. Protection of BNL population.
14. All personnel involved in this work are required to acknowledge the JHA for this project and sign off on the document.
15. Use approved fuel dispenser can. Post no smoking sign in the area if doing refueling of powered equipment.
16. Operator manual must be present for all equipment on job site.
17. All equipment used such as: ladders, drills, saws, hand tools, extension cords will be inspected daily at a minimum.
18. All work with chemicals shall be performed in accordance with IH report/recommendations prepared by contractor’s IH firm including PPE, monitoring, and reporting. Reporting shall meet BSA requirements.

| **Job Steps or Tasks** | **Hazards** | **Control Measures/Mitigation** |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Area Preparation | Employee ProtectionSlips, trips, fallsUneven surfaces | Physically inspect work areas prior to start of workFollow good housekeeping practices: create walkwaysAssure materials & debris do not block trafficKeep work areas clean & neat, remove rubbish & debrisWatch where you walkBe cognizant of your own safe work practices as well as those of your co-workersBe careful on slopes or wet/muddy areasFlagmen will be utilized as required for roadway trafficAppropriate warning signs will be postedBNL to be notified prior to road & sidewalk closing |
| General Site Security | Unauthorized access by BNL population | Guard against unauthorized access to excavation by erecting fencing around the work area to protect BNL population |
| Working outdoors | Heat StressSunburnDehydrationChiggers & Ticks | Drink plenty of water, and electrolyte drinks as neededWear light-colored, cotton clothingSlow down work rate and increase breaks in hot weatherUse sunscreenUse Bug Repellant |
| General Material Lifting/Handling | Ergonomic InjuryImpact InjuryBack injuryMuscle pullsSprains & strains Lacerations | Use proper lifting methods, including team lifting when necessary. (Over 80 lb.)Use mechanical equipment whenever possibleLift with legs, keep loads close to body, don’t twist while picking up loadsWear cut-resistant work gloves whenever materials are being handled |
| Use of Hand and Power Tools:General | Eye injuryLacerations and hand injuries | Wear eye protection when using hand/power tools which cause flying debrisEye wash to be immediately availableTools must be in good condition and used for their intended purposeFamiliarize workers with tool operationDe-energize power equipment prior to changing bits or bladesWear appropriate hand protection; observe good work practices in ensuring that work gloves are in good condition |
| Use of Hand and Power Tools:ElectricCutting/Grinding | Electrical hazardsMetal in eyes & cutsImproper groundingImproper operations & maintenance | Wear safety goggles/glasses at all times & proper protective glovesFace shields over safety glassesUse properly grounded or double-insulated tools with ground-fault circuit interrupters (GFCI)Inspect the electrical cords for fraying, cracks, and other damage before use; remove damaged cords from serviceNever daisy-chain electrical cords |
| General Tool Safety | Eye injuryLacerations | Choose the right tool for the task. Inspect tools before & remove defective tool from service |
| Delivery of Material On Site  | Hitting people or obstacles on site with truckUnwanted loss of or shifting loadBacking vehicle striking worker | Drive The Proper Speed Limit (5 MPH) And Constantly Scan For Potential AccidentsTruck driver has been informed and understands the requirements in this documentDriver reads and “signs off” on documentHave proper PPE available for drivers so they can exit the cab to remove/tie down loadsBe sure all items are securely tied and out of harm’s wayKeep loads secure until ready to be removed from the truck. Chock or wedge to prevent rolling of round objects. No use of “cheater bars” on Load Binders allowedEffective back up alarm and/or flagger to direct truck while backing |
| Delivery of Material On Site (Continued) | Truck/trailer unwanted rollingTruck getting stuck - Tow cable/chains breaking.Entering and exit being struck by | Set parking brakes and chock tiresHazards of trying to pull truck out from being miredRoad signage warning traffic of hazardFlagmen are to be used when necessary |
| Unloading Trucks | Strains & Struck bySlipsNails In The FootTripping | Utilize Proper Rigging And EquipmentSlings and chains must be inspected prior to use, and be designed for the proper lifting capacity of the loadFollow manufacturer’s recommendation on all equipmentDriver will stay clear of unloading and loading operationsAll wood scraps, nails, banding must be cleaned up immediately and placed in containers. |
| Work in Confined Space, Welding | O2 deficient atmosphereExplosive atmosphere | All employees to have BNL confined space training, attendant training, confined space certification form required, attendant required, confined space monitoring required, manhole barriers requiredEvaluate atmospheric conditions prior to entry through atmospheric monitoring and provide engineering controls as necessaryComplete certification form and permit, if required, prior to entryRigorous control of all materials brought into confined spacesUtilize proper personal protective equipmentComply with BNL Confined Space RequirementsComply with OSHA CFR 1926.21 - (Safety training and education requirements). |
| Concrete Saw Cutting and Drilling | Silica dust inhalation | Use engineering controls and wetting of concrete as a containment method to prevent any dustWhen sawing concrete, use saws that provide water to the bladeUse adequate respiratory protection when source controls cannot prevent dustUtilize proper personal protective equipment as determined by IH Support |
| ExcavationTrenchingDirt Removal | Hitting buried utilitiesProperty DamageElectrocution Crushing, flying debrisNoise | Completed mark-outs of utilities and excavation permit prior to start of excavation workBrief workers on digging permit, scope of work, and the need to observe and maintain mark-outsInspection and maintenance of utility mark-outs as often as necessary, but never longer than every 30 daysConfirm location of all utilities within excavation area by hand diggingSoft digging (No mechanical means) only within a tolerance/exclusion zone of 2 feet all around utility.All soils shall be considered Class “C”Wear proper PPEKeep appropriate distance for task at handHave competent person examine area before work Keep spoils pile at least three feet from edge of excavationKeep non-essential personnel away from work activitiesAll equipment will be inspected by BNL personnel 48 hours prior to using on the job |
| Grading | Struck byCaught in betweenNoise | Ensure that all back up alarms and other safety equipment are working properly. Wear seat beltWear safety glassesWear hearing protection during operations when required by noise level above 85 dBASafety vests to be worn at all timesKeep in sight of operator |
| Deep Excavation | Wall collapseEngulfmentUndermining of structures | Excavations deeper than 5 ft in depth require an excavation plan. The required excavation plan must be complied with at all timesAll excavation egress shall be inspected daily and maintainedExcavate slopes to 1.5 to 1 ratios, (34 ½ Degrees), install trench box when inadequate space is available for slopingWatch for signs of collapse: tension cracks, ground settlement, water seepage etc.Safe-off excavation area as requiredDo not excavate below foundations or footings of structuresUse shoring or underpinning to protect against collapse of structures |
| Compacting | Wall collapseNoiseEngulfment | Ensure the vibration does not collapse excavationWear appropriate hearing protection if the noise levels require it, above 85 dBAHave competent person inspect excavation before work starts every day and as often as necessary during the shift or after a rain stormEnsure backup alarm is working properlySafety vest are to be worn at all times |
| Dust Control | Breathing & eye irritantProperty damage | Use mechanical, hoses or sprinkler to moisten soil to keep dust under controlUse proper respiratory protection as needed, as determined by IH Support |
| Equipment Operation | Equipment accidentsStruck-by or crushing accidents with ground personnel | Allow only necessary personnel into areas where equipment is operatingMaintain line of sight with operatorsEstablish and use appropriate hand signalsDaily equipment inspection checklist will be performed each day prior to the use of the equipmentAll operator manuals must be with the machineBucket and attachments must be grounded when not in useOnly trained and qualified Operators are allowed to run the equipmentUse spotters where high noise levels or poor visibility interfere with an operator's ability to see objects on all sides of the equipmentUtilize safety vests at all timesSwing radius is to be barricaded while working around ground personnelKeep all personnel out from under loadsProtective systems shall be designed in accordance with OSHA 1926 Subpart P – ExcavationsTrench box shall be used when inadequate space is available for proper sloping |
| Equipment to be used | Not knowing equipmentStruck byCaught in between | Must be trained on useFollow Manufacturer’s GuidelinesHave Operating Manual on siteEquipment:Hauling Trucks, 892E Excavator, PC300 Excavator, 450 Pay Loader, 430 Backhoe, D5 Dozer, 320 Bobcat, 250 Bobcat |
| Erosion Control | ContaminationProperty damage | Ensure the Erosion Control Plan is followedUse of engineered controls such as misting of soils to prevent excessive dust migrationInspect site weekly and after every rain event, and repair all damages as soon as possible |
| Site Maintenance | Personal InjuryTripping & fallingProperty Damage | Be sure all debris & material are stored to avoid tripping hazardAll work areas are kept cleanAll work areas are secure from unauthorized access |
| Transportation | Traffic accidentsCrushing | Obey posted speed limits and traffic laws.Cover loads to minimize the risk of blowing debris.Do not overload vehicles in weight or volume.Be sure route is identified and BNL personnel are informed in advance.When dumping on a stockpile truck drivers must inspect the stockpile for cracks along the edge of slope.Trucks should dump only in designated area that has been prepared by the construction of a berm, and after a supervisory inspection for signs of instability |
| Concrete placement | Eye and skin injury from splashing concrete | Wear boots, long sleeve shirts, and eye protectionWear proper eye protection and PPE |
| Reinforcing steel | Impalement | All protruding reinforcing steel, onto and into which workers could fall, shall be guarded to eliminate the hazard of impalement |
| Cranes | Personal injuryProperty damageStruck byEquipment failure | Pre-Inspection by BNL 48 hours before equipment arrival Trained and Qualified OperatorComply with OSHA 1400 - CranesAnnual Crane Inspection & other required recordsLogistics PlanDaily Pre-Lift MeetingDaily ChecklistDaily Riggers ChecklistProper PPE |
| Mobile Equipment | Traffic hazards | Coordination of moving equipment by Supervisor, follow the Manual of Uniform Traffic Control Device requirements (MUTCD) as incorporated by reference OSHA 1926Only designated personnel allowed in work areasSet up traffic control devices and signage Warning signs shall be placed to provide adequate warning of hazards to workers & public |

I have attended the safety orientation tool box meeting where we discussed the phases of the job and any potential hazards, housekeeping, and keeping the BNL population out of harm’s way. We also reviewed the JHA & BNL Work Permit.

I have read and understand the aforementioned JHA recommended job safe procedures and the BNL Work Permit and will follow them throughout this job:

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Life Number** | **Signature** | **Date** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

A signed copy of the JHA must be posted while the applicable subcontractor is working on-site and be available to any BNL employee upon request.