

Central Workforce Development Board – Heavy Equipment Simulator IFB

DATE: June 2, 2017

TO: Eligible Bidders

FROM: Central Region Workforce Investment Board, Inc

SUBJECT: Invitation for Heavy Equipment Simulators for Boonville Correctional Facility

ENTITY TO BE SERVED: The Central Region Workforce Investment Board, Inc. dba Central Workforce Development Board (hereinafter referred to as CWDB) is the Administrative Entity/Grant Recipient (AE) of the Workforce Innovation and Opportunity Act (WIOA) funds for the central Missouri area known as the Central Region. The CWDB is a nonprofit organization created for the purpose of providing the administration and oversight of WIOA-funded job training programs for the economically disadvantaged adults, youth and laid off workers of the Central Region. The C-WDB has an exemption from Federal Income Tax under 501 (c) (3) and is exempt from Missouri State Taxes.

CONTACT PERSON: Jacque Moreland, Fiscal Officer

DEBARRED AND SUSPENDED PARTIES: The CWDB or its sub-recipients shall not make any subgrants or permit any contact or subcontract at any tier to any party that is debarred or suspended or is otherwise excluded from or ineligible for participation in federal assistance programs. **Complete and return Attachment A with your bid.**

NONDISCRIMINATION AND EQUAL OPPORTUNITY: The CWDB shall not exclude any person from participation in, nor deny any person the benefits of, nor subject any person to discrimination under any program or activity funded under the act pursuant to this IFB on the grounds of race, creed, color, disability, national origin, sex, political affiliation or beliefs. The term “disabled” shall apply to any person who: (1) has a physical or mental disability which for such individual constitutes or results in a substantial disability to employment and (2) can reasonably be expected to benefit in terms of employability from the activities funded under the terms of this agreement.

PROPOSER/BIDDER’S ASSURANCE: The proposer certifies that to the best of their knowledge and belief, the cost data is accurate, complete, and current as submitted in their response to this IFB. Should there be an extended lapse of time between the proposer’s IFB response and the bid award, the proposer will recertify price to award. The proposer will be made aware that contract or modifications negotiated in reliance on such data should provide the CWDB a right to a price adjustment to exclude any significant sum by which the price was increased because the proposer had submitted data that was not accurate, complete, or current as certified.

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NOTICE TO ALL BIDDERS: The CWDB reserves the right to accept, reject, and/or negotiate any or all bids.

DATE OF SUBMISSION: A sealed bid package with one (1) copy of the proposal must be received at the Central Region Workforce Investment Board, Inc., 604 Black Street, Rolla, Mo 65401 no later than 4:00 p.m. June 12, 2017. All bids received after the submission deadline will be returned unopened to the bidder. The proposal package container face must be clearly marked “Heavy Equipment Simulator Bid” to avoid inadvertent opening before the scheduled opening. Failure to mark the package and its resultant opening before the scheduled opening will be the fault of the bidder and may cause the bid to be determined non-responsive.

PROPOSAL OPENING: Proposals will be opened and evaluated by AE staff after the date of submission. All proposals submitted and opened become the property of the CWDB to document the proposal and selection process.

PROPOSAL REVIEW PROCESS: The AE staff will review bids for responsiveness to the IFB, relationship of bid-to-bid specifications, and reasonableness of cost. The bid selected will be that which best meets the needs of the CWDB at the most reasonable cost. Low bid may not take precedence over the firms experience.

CONTRACT NEGOTIATION: Following the selection, the CWDB may authorize the Administrative Entity to negotiate minor discrepancies between the vendor’s submitted bid and the AE’s requirements.

NON-COMMITMENT: Receipt of this IFB does not commit the CWDB to award any specific entity receiving the document, or to pay the costs of the preparation and submission of any or all of the proposals generated thereby. The CWDB reserves the right to make no selection should proposals be non-responsive to its needs or too costly.

PAYMENT: Normally rendered when the services have been rendered. If this is not acceptable to the proposer, they should state their alternative desires or requirements.

BID SPECIFICATIONS

The CWDB is requesting bids from qualified bidders for re-a contractors for repair of one building due to water damage. Repair must include removal of all waste not normally found in an office setting.

Type of Bid: Heavy Equipment Simulator for Boonville Correctional Facility

Items to be included in the Proposal:

1. Price of all three (3) simulators
2. Motion platform
3. Computers
4. Technical support and length of said support
5. Maintenance updates
6. Available languages
7. Freight, deliver, setup, etc

SIMULATORS HYDRAULIC EXCAVATOR SIMULATOR SYSTEM

System Design

- Standard SAE and Backhoe Loader style control patterns.
- Replica most common joystick controls.
- OEM buttons and switches to include: Travel Speed Control, Automatic Engine Speed Control, Travel Alarm Cancel Switch, Work Tool Control, Light Switch, Upper Window Wiper, Upper Window Washer, Heavy Lift Control, Fine Swing Control, Lower Window Wiper, Lower Window Washer, Overload Warning Device, Engine Start Switch, Engine Speed Control, Quick Couple Control, Manual Low Idle;
 - Left pod includes: hydraulic lockout control, horn, joystick control.
 - Right pod includes: engine start switch, travel speed control, automatic engine speed control, travel alarm cancel switch, work tool control, light switch, upper window wiper, upper window washer, heavy lift control, fine swing control, lower window wiper, lower window washer, overload warning device, engine start switch, engine speed control, quick couple control, manual low idle, and joystick control.
- Foot pedals with travel levers (tramming forward/backward, counter rotate.)
- Keyboard and touchpad mouse for easy navigation of software. • Keyboard concealed under arm rest of the control pod.
- Durable tubular steel frame
- Replica operator's seat that slides forward and backward on frame and tilts forward and backward.
- Fully functional seat belt with sensor connected to computer software.
- Computer requirements:
 - Base Unit- CPU T5810

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- Processor- Intel Xeon Processor E5-1603 v3 (Four Core, 10MB Cache, 2.8GHz)
- Memory- 8GB, (4x2GB) 2133MHz DDR4 RDIMM ECC
- Video Card- EVGA GeForce GTX 960 - 02G-P4-2966
- Hard Drive- 500GB 3.5inch Serial ATA(7.200Rpm) Hard Drive o Media Drive - 8x Slimline
DVD+/-RW Drive
- Operating System - Windows 7 Professional, x64, English Language
- Monitor stand with vertically hung 43" LED 1080P
- Power requirements: Simulator-100 – 250V – 50/60HZ power supply, PC-100-250V – 50/60hz power supply, Monitor-100 – 250V – 50/60HZ power supply
- Training Records Management System:
 - used to set up individual student accounts
 - group students into classes
 - archive student records for grades or future reference
 - allows the ability to change metric standards for each exercise
 - choose which exercises a student must complete
 - print detailed reports for the class, individual student, or specific exercises
 - Restrict access to simulator results in the database as needed
 - Set which metrics you want your students to achieve
- After completion of exercise, a report will be generated with metrics measured and a pass or fail score.

Scoring for each exercise should be generated based on time, productivity, equipment damage (number of contacts with external objects), and training exercise success.

 - Training Metrics
 - Total of 484 metrics measured
 - Total of 26 unique metrics measured
 - 49 exercise specific metrics across 14 exercises
 - 27 base metrics included for all exercises excluding Machine Walkaround and Controls
 - Familiarization.
 - Controls Familiarization – 51 measured metrics.
 - Machine Walkaround – 52 inspections points.
 - Examples of Metrics measured:
 - Execution Time
 - Average Bucket Fill Factor
 - Productivity
 - Volume Moved
 - Average Cycle Time
 - Number of Bucket Slams
 - Number of Collisions
 - Buckets To Load Truck
 - Initial Attack Angle
 - Percent Deviation From Projected Path
 - Length Of Trench
- Deformable terrain: 200x200 meter
- All dirt is interactive with the machine in simulation.

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- While simulation is in practice mode, the simulation exercises give step by step onscreen instruction in order to complete an exercise.
- When in exam mode, the simulation exercise removes the onscreen instruction and automatically saves the record in Training Records Management System database for the instructor and student to review.
- 3D Modeling of the Hydraulic Excavator is based on the Cat actual equipment. SimU generates reports with metrics after each exercise that reflects how the operator would work in a real life environment.
- Languages available: English, Spanish, French, Chinese (Simplified and Traditional) and Danish.
- E-book training material for extended simulator training available comes with the HEX purchase.
 - o Machine Introduction. Describes the size, capacity and uses for the machines.
 - o General Operations. Has the blades, rippers, buckets and work tools found on actual worksites.
 - o Simulator System Use. Step-by-step instructions of how to use the simulator system.
 - o Objectives. Has the objective of each training exercise.
 - o Step-by-Step Training Methods. The material explains each step along with helpful images, and the best methods for each application.
 - o Definition and Explanation of each Exercise & Result Measured. The simulator system records and reports the results of each simulation session through the training records management program, SimU Campus™. It will show you what these results mean and why recording and analyzing the results can mean efficient operators.
 - o Video Examples of the Correct Way to Perform Simulated Exercises. Help the operator achieve the best outcome by showing an example of what is expected during the training exercise.
 - o Formulas. Calculates fuel savings, production and more (depending on the system).
 - o Operation Tips. Tips from the Cat experts.
 - o How-to Images. See examples of application steps in helpful drawings and images.
 - o Safety Information. Has information for operators to achieve maximum safety awareness while operating the machines.
- 1 year hardware and software warranty. The warranty is offered to the purchaser for defects

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in workmanship or materials for one year after the date of original purchase invoice date. This

warranty includes replacement of defective simulator hardware pieces and/or software due

to defects in workmanship or materials during the warranty period.

- 1 year of phone, email support and maintenance software updates.
- Complete excavator simulator software must be pre-loaded and tested as a fully functional operating system before shipment.

Training Exercises

- o Machine Walkaround: Pre-operation machine inspection procedures to ensure proper operating and safety conditions, includes faulty points of non-operational parts.
- o Controls Familiarization: Operator controls and proper sequences for machine operations including start-up and shut-down procedures.
- o Bucket Placement: Position excavator bucket in space.
- o Raking the Green: Position excavator bucket to follow trajectory in a straight line.
- o Over the Moon: Position excavator bucket to follow arc movements of the stick/boom/bucket combination.
- o Loading & Off-Loading Machine From Low-Boy Trailer: Load and unload machine properly from trailer following all safety procedures.
- o Trenching: Use bucket to excavate trench.
- o Truck Loading: Load dirt into bucket and dump contents into articulated truck from ground level using “over the rail” technique.
- o Bench Loading: Load articulated truck from bench position.
- o Setting Trench Box & Pipe: Load and secure the trench box to the machine, move into position and properly lower the pipe into the trench.
- o Backfilling: Backfill a trench.
- o Quick Coupler: Change tools using the Quick Coupler feature on the machine.
- o Production Cycle: Exercise builds on previous modules to teach user to complete a full production cycle, including unloading machine from trailer, digging trench, setting trench box and pipe, backfilling trench and reloading machine onto trailer.
- o Open Training: User and instructor can work on specific curriculum training. Allows instructor to expand functionality of simulator to customize training for each user according to individual needs.
 - o Samples of metrics measured:
 - Execution Time
 - Average Bucket Positioning Error Vertical
 - Average Bucket Positioning Error Horizontal
 - Attack Angle
 - Stick Angle
 - Number of Bucket Slams
 - Number of Other Collisions
 - Productivity

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- Length of Trench
- Fuel Burned
- Volume of Material Moved
- Average Dumping Distance of Material
- Time Spent Digging Over Final Drive
- Average Bucket Alignment Error
- Average Bucket Height
- Percent Deviation From Projected Path
- Number of Collisions Between Bucket and Truck
- Maximum Variation of Final Grade

Manager's Workstation

- Manager's Workstation is used by the instructor as an added tool for the Training Records Management System. From a single location, instructors organize and assign students to simulator classes, view class information, and allow or deny student access to individual simulators. The workstation unit contains database capabilities and can be used to track, store and print the user's reports for each exercise and class roster. The manager's work station allows instructors to:
 - o Upload all student names in one place.
 - o Assign classes for each simulator.
 - o Choose individual training exercises on multiple simulators for specific students.
 - o Allow simultaneous operation of multiple simulators.
 - o Restrict access to simulators.
 - o Save report results from the exercise as an individual record within a database.
- Managers Workstation requirements:
 - o Computer – CPU T5810
 - o Flat Panel Monitor – 21.5 inch – 1920x1080 resolution
 - o Computer Desk
 - o Chair
 - o 8-Port Router – for up to seven simulators and one managers work station.

Motion Platform

- Requires four actuators that are removable
- Motion Platform is removable – customer has the option to operate the simulator with or without motion.
- Motion Platform provides three DOF (degree of freedom)
- Provides the student with a realistic working environment that simulates motions associated with:
 - o Trimming
 - o Turns
 - o Swing
 - o Tipping
 - o Grade ascent and decent
- Motions cues associated with:
 - o Maneuvering over flat and sloped terrain
 - o Operating with an unbalanced load/tipping
 - o Equipment vibration

SIMULATORS SMALL WHEEL LOADER SIMULATOR SYSTEM

System Design

- Replica most common OEM controls.
- Most common OEM buttons and switches to include: Steering Column with right and left dashboard switches includes: Differential Lock Indicator Light, Transmission Neutralizer, Control Switch, Autoshift Switch, Dimmer Switch, Hazard Lights, Rooding Lights, Front & Rear Floodlights, Transmission Control, Horn, Front Window Wiper & Washer, Rear Window Wiper & Washer, Secondary Steering Switch;
Right control pod includes: auxiliary hydraulic control lever (open/close the clamshell), joystick control (lower/float, hold, raise, tilt back, dump), transmission control switch (forward, neutral, reverse), Continuous Flow Control, Joystick Mouse/Mouse Controls, Hydraulic Lockout Switch, Auxiliary Operating Mode Switch, Throttle Lock Switch, Throttle Set/Resume Switch, Quick Coupler Control Switch, Rear Window Defroster Switch, Bucket/Fork Selector Switch, Kickout Control Switch, Ride Control Switch, Heat Switch/Air Conditioner Switch, Fan Speed Switch
- Pedal Plate with two service brakes pedals, differential lock button and accelerator pedal.
- Keyboard and touchpad mouse for easy navigation of software.
- Keyboard concealed under arm rest of the control pod.
- Durable tubular steel frame
- Replica operator's seat that slides forward and backward on frame and tilts forward and backward.
- Fully functional seatbelt with sensor connected to computer software.
- Computer requirements:
 - o Base Unit - CPU T5810
 - o Processor - Intel Xeon Processor E5-1603 v3 (Four Core, 10MB Cache, 2.8GHz)
 - o Memory - 8GB, (4x2GB) 2133MHz DDR4 RDIMM ECC
 - o Video Card - EVGA GeForce GTX 960 - 02G-P4-2966
 - o Hard Drive - 500GB 3.5inch Serial ATA(7.200Rpm) Hard Drive
 - o Media Drive - 8x Slimline DVD+/-RW Drive
 - o Operating System - Windows 7 Professional, x64, English Language
- Monitor stand with horizontally hung 43" LED 1080P TV
- Power requirements: Simulator-100 – 250V – 50/60HZ power supply, PC-100-250V – 50/60hz power supply, Monitor-100 – 250V – 50/60HZ power supply
- SimU Campus™ Training Records Management System:
 - o used to set up individual student accounts
 - o group students into classes
 - o archive student records for grades or future reference
 - o allows the ability to change metric standards for each exercise
 - o choose which exercises a student must complete
 - o print detailed reports for the class, individual student, or specific exercises

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- o restrict access to simulator results in the database as needed
- o set which metrics you want your students to achieve
- After completion of exercise, a report will be generated with metrics measured and a pass or fail score.
 - Scoring for each exercise should be generated based on time, productivity, equipment damage (number of contacts with external objects), and training exercise success.
 - o Training Metrics
 - 38 unique metrics included for all exercises excluding Machine Walkaround and Controls Familiarization.
 - 20 exercise specific metrics across 11 exercises
 - Controls Familiarization – 75 measured metrics. Machine Walkaround – 102 inspections points.
 - o Examples of Metrics measured:
 - Execution Time
 - Fuel Burned
 - Average Positioning Error
 - Average Bucket Attack Angle Error
 - Average Bucket Orientation Error
 - Time Driving without Bucket in Carry Position
 - Distance Driven with Parking Brake Engaged
 - Number of Bucket Collisions with Ground While Driving
 - Number of Other Collisions
- Deformable terrain: 600 x 600 meters
- All dirt is interactive with the machine in simulation.
- While simulation is in practice mode, the simulation exercises give step by step onscreen instruction in order to complete an exercise.
- When in exam mode, the simulation exercise removes the onscreen instruction and automatically saves the record in Training Records Management System database for the instructor and student to review.
- 3D Modeling of the Small Wheel Loader is based on the actual Cat equipment. SimU generates reports with metrics after each exercise that reflects how the operator would work in a real life environment.
- Languages available: English, Spanish, French, Chinese and Portuguese.
- E-book training material for extended simulator training available.
 - o Machine Introduction. Describes the size, capacity and uses for the machines.
 - o General Operations. Has the blades, rippers, buckets and work tools found on actual worksites.
 - o Simulator System Use. Step-by-step instructions of how to use the simulator system.
 - o Objectives. Has the objective of each training exercise.
 - o Step-by-Step Training Methods. The material explains each step along with helpful images, and the best methods for each application.

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- o Definition and Explanation of each Exercise and Result Measured. The simulator system records and reports the results of each simulation session through the training records management program, SimU Campus™. It will show you what these results mean and why recording and analyzing the results can mean efficient operators.
- o Video Examples of the Correct Way to Perform Simulated Exercises. Help the operator achieve the best outcome by showing an example of what is expected during the training exercise.
- o Formulas. Calculates fuel savings, production and more (depending on the system).
- o Operation Tips. Tips from the Cat experts.
- o How-to Images. See examples of application steps in helpful drawings and images.
- o Safety Information. Has information for operators to achieve maximum safety awareness while operating the machines.
- 1 year hardware and software warranty. The warranty is offered to the purchaser for defects in workmanship or materials for one year after the date of original purchase invoice date. This warranty includes replacement of defective simulator hardware pieces and/or software due to defects in workmanship or materials during the warranty period.
- 1 year of phone, email support and maintenance software updates.
- Complete SWL simulator software must be pre-loaded and tested as a fully functional operating system before shipment.

Training Exercises

- O Machine Walkaround: Pre-operation machine inspection procedures to ensure proper operating and safety conditions, includes faulty points of non-operational parts.
- o Controls Familiarization: Operator controls and proper sequences for machine operations including start-up and shut-down procedures.
- o Driving: Basic movements of the machine using the steering wheel. The operator will learn proper bucket placement while maneuvering around a job site.
- O Load and Carry: Using the standard commercial bucket the user will load material at a stockpile and unload it at a highwall pit.
- o Stockpile: Basic stockpiling procedures.
- o Truck Loading: Proper loading and V-pattern techniques; as well as using proper procedures to load a dump truck.
- o Truck Spotting: Proper loading and V-pattern techniques; as well as spotting a dump truck for loading.
- o Backfilling: Backfill a trench using the commercial bucket attachment.

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- o Multipurpose Bucket – Backfilling: Backfill a trench using the multipurpose bucket attachment
 - by using the bottom of the bucket as a blade.
- o Multipurpose Bucket – Carry Objects: Use the multipurpose bucket to move logs/pipes from one location to another on the worksite.
- o Quick Coupler – Bucket/Forks: Change tools using the Quick Coupler feature on the machine.
- o Unloading Pallets – Forks: Unload pallets with the forks attachment.
- o Open Training: Allows instructor to expand functionality of simulator to customize training for each student according to individual needs.
 - o Samples of metrics measured:
 - Execution Time
 - Incorrect Control Familiarization Actions Attempted
 - Average Positioning Error
 - Average Bucket Attack Angle Error
 - Average Bucket Orientation Error
 - Time Driving without Bucket in Carry Position
 - Distance Driven with Parking Brake Engaged
 - Number of Bucket Collisions with Ground While Driving
 - Number of Other Collisions
 - Time Spent Turning with Differential Lock On
 - Time Spent in Forward
 - Number of Drops Between Pick Up and Release Points
 - Number of Object Collisions
 - Time Spent in Reverse
 - Distance Driven in Reverse
 - Amount of Material Spilled Between Zones
 - Productivity
 - Maximum Bucket Height when Entering Digging Zone

Manager's Workstation

- Manager's Workstation is used by the instructor as an added tool for the Training Records Management System. From a single location, instructors organize and assign students to simulator classes, view class information, and allow or deny student access to individual simulators. The workstation unit contains database capabilities and can be used to track, store and print the user's reports for each exercise and class roster. The manager's work station allows instructors to:
 - o Upload all student names in one place.
 - o Assign classes for each simulator.
 - o Choose individual training exercises on multiple simulators for specific students.
 - o Allow simultaneous operation of multiple simulators.
 - o Restrict access to simulators.
 - o Save report results from the exercise as an individual record within a database.
- Managers Workstation requirements:
 - o Computer – CPU T5810
 - o Flat Panel Monitor – 21.5 inch – 1920x1080 resolution

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- o Computer Desk
- o Chair
- o 8-Port Router – for up to seven simulators and one managers work station.

Motion Platform

- Requires four actuators that are removable
- Motion Platform is removable – customer has the option to operate the simulator with or without motion.
- Motion Platform provides three DOF (degree of freedom)
- Provides the student with a realistic working environment that simulates motions associated with:
 - o Acceleration
 - o Deceleration
 - o Braking
 - o Turns
 - o Tipping
 - o Grade ascent and decent
- Motions cues associated with:
 - o Maneuvering over flat and sloped terrain
 - o Operating with an unbalanced load/tipping
 - o Equipment vibration
 - o Effects of bucket and soil interaction

SIMULATORS TRACK TYPE TRACTOR SIMULATOR SYSTEM

System Design

- Replica most common OEM controls.
- Most common OEM buttons and switches to include: key, horn, high/low idle, implement lockout
switch, Bidirectional Shift Mode, Automatic Downshift , Auto Blade Assist, Ripper controls
Shank In/Out lever, Bulldozer Blade Control Lever, Auto Blade Assist Sequence, Override, Pitch Control Thumb Switch, Float/Hold/Raise/Dual Tilt Lift/Dual Tilt Hold/Dual Tilt Right blade functions, steering control lever, gear selector (forward, neutral, reverse), transmission upshift & transmission downshift switches, service brake pedal, decelerator pedal.
- OEM Footrests with Service Brake Control pedal and Decelerator pedal.
- Keyboard and touchpad mouse for easy navigation of software.
- Keyboard concealed under arm rest of the control pod.
- Durable tubular steel frame.
- Replica operator's seat that slides forward and backward on frame and tilts forward and backward.
- Fully functional seat belt.
- Computer requirements:
 - o Base Unit- CPU T5810
 - o Processor- Intel Xeon Processor E5-1603 v3 (Four Core, 10MB Cache, 2.8GHz)
 - o Memory- 8GB, (4x2GB) 2133MHz DDR4 RDIMM ECC
 - o Video Card- EVGA GeForce GTX 960 - 02G-P4-2966
 - o Hard Drive- 500GB 3.5inch Serial ATA(7.200Rpm) Hard Drive
 - o Media Drive - 8x Slimline DVD+/-RW Drive
 - o Operating System – Windows 7 Professional, x64, English Language
- Two Monitor stands with horizontally hung 43" LED 1080P TVs
- Power requirements: Simulator-100 – 250V – 50/60HZ power supply, PC-100-250V – 50/60hz power supply, Monitor-100 – 250V – 50/60HZ power supply
- SimU Campus™ Training Records Management System:
 - o used to set up individual student accounts
 - o group students into classes
 - o archive student records for grades or future reference
 - o allows the ability to change metric standards for each exercise
 - o choose which exercises a student must complete
 - o print detailed reports for the class, individual student, or specific exercises
 - o Restrict access to simulator results in the database as needed
 - o Set which metrics you want your students to achieve
- After completion of an exercise, a report will be generated with metrics measured and a pass or fail score. Scoring for each exercise should be generated based on time, productivity, equipment damage (number of contacts with external objects), and training exercise success.
 - o Training Metrics

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- 46 unique metrics included for all exercises excluding Machine Walkaround and Controls Familiarization.
- 45 exercise specific metrics across 9 exercises
- Controls Familiarization – 46 measured metrics.
- Machine Walkaround – 82 inspections points.
- Deformable terrain size: 200 x 200
- o Examples of Metrics measured:
 - Execution Time
 - Positioning Error
 - Number of Collisions
 - Distance maneuvered
 - Average Blade Height
 - Average Ripper Height
 - Maximum forward speed
 - Fuel Burned
 - Volume of material moved
- All dirt is interactive with the machine in simulation.
- While simulation is in practice mode, the simulation exercises give step by step onscreen instruction in order to complete an exercise.
- When in exam mode, the simulation exercise removes the onscreen instruction and automatically saves the record in Training Records Management System database for the instructor and student to review.
- 3D Modeling of the Track Type Tractor is based on the actual Cat D8T Track Type Tractor. SimU generates reports with metrics after each exercise that reflects how the operator would work in a real life environment.
- Languages available: English, Spanish, French, Chinese, Danish, Portuguese and Arabic.
- E-book training material for extended simulator training comes with the TTT purchase.
 - o Machine Introduction. Describes the size, capacity and uses for the machines. Gives
 - o General Operations. Has the blades, rippers, buckets and work tools found on actual worksites.
 - o Simulator System Use. Step-by-step instructions of how to use the simulator system.
 - o Objectives. Has the objective of each training exercise.
 - o Step-by-Step Training Methods. The material explains each step along with helpful images, and the best methods for each application.
 - o Definition and Explanation of each Exercise & Result Measured. The simulator system records and reports the results of each simulation session through the training records management program, SimU Campus™. It will show you what these results mean and why recording and analyzing the results can mean efficient operators.
 - o Video Examples of the Correct Way to Perform Simulated Exercises. Help the operator achieve the best outcome by showing an example of what is expected during the training exercise.

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- o Formulas. Calculates fuel savings, production and more (depending on the system).
- o Operation Tips. Tips from the Cat experts.
- o How-to Images. See examples of application steps in helpful drawings and images.
- o Safety Information. Has information for operators to achieve maximum safety awareness while operating the machines.
- 1 year hardware and software warranty. The warranty is offered to the purchaser for defects in workmanship or materials for one year after the date of original purchase invoice date. This warranty includes replacement of defective simulator hardware pieces and/or software due to defects in workmanship or materials during the warranty period.
- 1 year of phone, email support and maintenance software updates.
- Complete TTT simulator software must be pre-loaded and tested as a fully functional operating system before shipment.

Training Exercises

- Machine Walkaround: Pre-operation machine inspection procedures to ensure proper operating and safety conditions, includes faulty points of non-operational parts.
- Controls Familiarization: Operator controls and proper sequences for machine operations including start-up and shut-down procedures.
- Steering & Maneuvering – Wide: Techniques to safely maneuver machine around job site.
- Steering & Maneuvering – Narrow: Techniques to safely maneuver machine around a maintenance yard, including backup procedures for parking machine, avoid unnecessary ground disturbance utilizing three-point turns and counter rotation.
- Blade Steering: Techniques to utilize machine's blade steering capabilities in order to increase undercarriage life and reduce wear-and-tear on steering components.
- Level & Straight Dozing: Use machine blade to push material straight over a large area safely and efficiently.
- Slot Dozing: Slot dozing technique for efficient operations.
- Ripping: Rip patterns based on grain of material and perform ripping operations safely and efficiently.
- Backfilling: Safely and efficiently backfill a trench.
- Dozing Over a Highwall: Push material over a highwall. Maintain a proper slope in the dumping area to ensure site stability. Maintain proper safety berms along the highwall edge in accordance with MSHA requirements.
- Open Training: Student and instructor can work on specific individual training, personalized to student needs.
 - o Samples of metrics measured:
 - Execution Time
 - Number of Times Off Course
 - Times Failed To Start Engine

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- Times Failed To Shut Down Engine
- Times Failed To Raise Ripper
- Times Failed To Lower Ripper
- Time Spent in Forward
- Time Spent in Reverse
- Time Spent in Neutral
- Distance Maneuvered
- Distance Maneuvered in Reverse
- Maximum Forward Speed ♣ Maximum Blade Height
- Average Blade Height
- Average Blade Height While Maneuvering
- Maximum Ripper Height
- Average Ripper Height
- Number of Blade Collisions with Ground While Maneuvering and Stopped
- Number of Ripper Collisions with Ground While Maneuvering and Stopped
- Number of Other Collisions
- Blade Tilt Angle while Maneuvering
- Blade Pitch Angle while Maneuvering
- Ripper Shank Angle while Maneuvering
- Number of Engine Overspeed Warnings Issued
- Times Service Brake Used
- Number of Times Machine Stalled
- Time Spent with Tracks Slipping

Manager's Workstation

- Manager's Workstation is used by the instructor as an added tool for the Training Records Management System. From a single location, instructors organize and assign simulator classes to students, view class information, and allow or deny student access to individual simulators. The workstation unit contains database capabilities and can be used to track, store and print the user's reports for each exercise and class roster. The manager's workstation allows instructors to:
 - o Upload all student names in one place.
 - o Assign classes for each simulator.
 - o Choose individual training exercises on multiple simulators for specific students.
 - o Allow simultaneous operation of multiple simulators.
 - o Restrict access to simulators.
 - o Save report results from multiple simulators under 1 students account.
- Managers Workstation requirements:
 - o Computer – CPU T5810
 - o Flat Panel Monitor – 21.5 inch – 1920x1080 resolution
 - o Computer Desk o Chair

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- o 8-Port Router – for up to seven simulators and one managers work station.

Motion Platform

- Requires four actuators that are removable
- Motion Platform is removable – customer has the option to operate the simulator with or without motion.
- Motion Platform provides three DOF (degree of freedom)
- Provides the student with a realistic working environment that simulates motions associated with:
 - o Acceleration
 - o Deceleration
 - o Braking
 - o Turns
 - o Tipping
 - o Grade ascent and decent
- Motions cues associated with:
 - o Maneuvering over flat and sloped terrain
 - o Operating with an unbalanced load/tipping
 - o Equipment vibration
 - o Effects of blade and soil interaction

CERTIFICATION REGARDING
DEBARMENT, SUSPENSION, INELIGIBILITY
AND VOLUNTARY EXCLUSION
LOWER TIER COVERED TRANSACTIONS

This Certificate is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 29 CFR Part 98.510, Participant's responsibilities. The regulations were published as part VII of the May 26, 1988 Federal Register (pages 19160-19211).

(BEFORE COMPLETING CERTIFICATION, READ ATTACHED
INSTRUCTIONS WHICH ARE AN INTEGRAL PART OF THE
CERTIFICATION)

- (1) The recipient of Federal assistance funds certifies, by acceptance of this contract, that neither it nor its principles are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily exclude from participation in this transaction by any Federal department or agency.
- (2) Where the recipient of Federal assistance funds is unable to certify to any of the statements in this certification, such participant shall submit an explanation to the Administrator.

Name and Title of Authorized Representative

Signature

Date

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1. By signing and submitting this proposal, the prospective recipient of Federal assistance funds is providing the certification as set out below.
2. The certification in this clause is material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective recipient of Federal assistance funds knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the Department of Labor (DOL) may pursue available remedies, including suspension and/or debarment.
3. The prospective recipient of Federal assistance funds shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective recipient of Federal assistance funds learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms “covered transaction,” “debarred,” “suspended,” “ineligible,” “lower tier covered transaction,” “participant,” “person,” “primary covered transaction,” “principal,” “proposal,” and “voluntarily excluded,” as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
5. The prospective recipient of Federal assistance funds agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the DOL.
6. The prospective recipient of Federal assistance funds further agrees by submitting this proposal that it will include the clause titled “Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion – Lower Tier Covered Transactions,” without modification, in all lower tier covered transaction in all solicitations for lower tier covered transactions.
7. A participant in a covered transaction may rely upon a certification of prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may but is not required to check the List of Parties Excluded from Procurement or Non-procurement Programs.
8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
9. Except for transactions authorized under paragraph 5 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the DOL may pursue available remedies, including suspension and/or debarment.