

<b>LATA</b>	Title Completion Report	Document No.: NIA-PLA-WP-006	Revision No.: 0
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# COMPLETION REPORT

for the

## Removal of Radioactive Materials

### at Niacet Corporation

Prepared for:  
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## List of Acronyms

ALARA	As Low As Reasonably Achievable
AOC	Area of Concern
CA	Contamination Area
CHP	Certified Health Physicist
CRZ	Contamination Reduction Zone
GRD	Greater Radiological Dimensions, Inc.
GWS	Gamma Walkover Surveys
HASP	Health and Safety Plan
LATA	Los Alamos Technical Associates, Inc.
NRC	Nuclear Regulatory Commission
NYSDEC	New York State Department of Environmental Conservation
RCT	Radiological Control Technician
RSO	Radiation Safety Officer
RSP	Radiation Safety Plan
RWP	Radiation Work Permit
SOP	Site Operations Plan
SSHO	Site Safety and Health Officer
SZ	Support Zone
TLD	Thermo Luminescent Device

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## 1.0 INTRODUCTION

This Completion Report presents the documentation generated from and summarizes the activities related to the excavation of subsurface radioactive materials located at the Niacet property on 47<sup>th</sup> Street in Niagara Falls, New York (Site/Facility – see **Vicinity Map**). Niacet elected to perform this discreet remediation effort employing the services of Los Alamos Technical Associates (LATA) to ensure and maintain a high level of safety and protection of human health at their facility. Using expertise and past experience from LATA and guidance from the New York State Department of Environmental Conservation (NYSDEC) and Department of Health (NYSDOH), the project was completed within a year without incident and ahead of schedule and budget.

Work Plans were developed for this project by LATA and submitted to Niacet and NYSDEC/NYSDOH for review in late November 2012. The Work Plans included five major plans that guided the project efforts including a Site Operations Plan, a Health and Safety Plan, a Radiation Safety Plan, a Waste Management Plan, and a Waste Transportation and Disposal Plan (See Documents NIA-PLA-WP-001 through 005 for more details). The bases for these plans were various LATA field efforts performed at Niacet beginning with two gamma walkover surveys (initial cursory and detailed follow up) in February 2012. The survey efforts indicated the presence of subsurface radioactivity at a few locations on Niacet property; the highest levels and most significant of which were located in close proximity to Building #102. A subsequent, detailed characterization effort by LATA was completed in July 2012 that confirmed the presence of naturally occurring radioactive material (NORM) within specific subsurface locations at levels sufficiently elevated to be a concern and warrant removal.

At the request of Niacet, LATA and its subcontractor Greater Radiological Dimensions (GRD) mobilized to the facility on the first week of December 2012 to address the subsurface NORM located in the vicinity of Building #102 (see **Project Area Map**). Within two weeks, the radioactive materials were excavated and packaged for disposal, and the area was backfilled and restored to initial conditions. Most importantly, the previously impacted areas within Building #102 area were released with no elevated radiation measurements above background at the asphalt surface as indicated on the gamma radiation survey instruments.

## 2.0 SITE HISTORY AND BACKGROUND

Niacet Corporation owns and operates a commercial chemical plant located in Niagara Falls, New York. Operations began in 1924 under Carbide and Carbon Chemicals Company for the production of acetylene. Under joint ownership with E.I. DuPont and Shawinigan Power Company, Carbide and Carbon Chemicals formed Niacet derived from the words Niagara Acetylene. In 1928, Niacet built the first plant to produce synthetic glacial acetic acid by air oxidation of acetaldehyde. Sodium acetate and other derivatives soon followed. Also introduced in 1937 was one of the earliest productions of vinyl acetate by the treatment of acetic acid with acetylene. During World War II, output of acetylene and its derivatives was greatly increased to meet essential needs. In 1946, the company was purchased by Union Carbide Corporation, but

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the trademark Niacet remained. By the late 1970s the facility was barely profitable due to the presence of only two product lines. However in 1978, Niacet was reborn when an executive of Union Carbide Corporation purchased all the plant facilities and business activity associated with the Niagara Falls facility, including its highly skilled and experienced production and management staff.

Presently, Niacet produces largest capacity of metal salts in North America including a buffering agent, a food flavoring agent and a mold inhibitor for bread. Many facility expansions have occurred since the 1980s that have allowed Niacet to dominate market share for their products including Monochloroacetic Acid and co-product Hydrochloric Acid production, Sodium Acetate Trihydrate production, Calcium Propionate, and Sodium and Calcium Stearyl Lactylates. Despite the many operations and construction activities at the Site, no utilization or production of radioactive materials (product or by-product) has been documented in the almost 90 year history of the Facility. This fact, in addition to similar subsurface radioactive material concerns within adjacent and vicinity properties, suggests that these materials were imported to the Site from other locations or production facilities within the region. Potential industrial sectors or practices that commonly generate NORM include uranium mining, phosphate waste, coal waste, petroleum production, drinking water treatment, mineral mining/processing/extraction, and geothermal wastes. NORM can be defined as material containing potassium-40 (K-40) and isotopes belonging to the naturally occurring, long-lived, primordial parent radionuclides uranium-238 (uranium series), uranium-235 (actinium series), and thorium-232 (thorium series).

#### RECENT INVESTIGATIONS

Prior to 2012, no documented remedial actions have been performed at the Niacet Facility. As previously stated, concerns for potential subsurface radioactive materials at the Site began during the remediation of a neighboring property in the fall of 2011. As a result, a cursory gamma walkover survey (i.e., 20% - 50% general coverage with up to 100% coverage based upon professional judgment) of the high traffic outdoor areas of the facility was discussed in January of 2012. LATA and GRD subsequently performed this field activity with a single day effort on February 2, 2012. The results indicated anomalous gamma radiation readings that exceeded background and the screening guidance of 10,000 cpm at the following locations (see Summary of Findings Letter dated February 6, 2012 for more details):

- (1) Southeast open field area near Gate #9 generated readings upwards of 44,000 cpm
- (2) Localized “hotspots” in Building #102 asphalt area generated readings ranging from 35,000 cpm to 110,000 cpm
- (3) Open field area closest to Niagara Falls Blvd exhibited readings upwards of 27,000 cpm.

LATA and GRD followed up the initial survey with a more detailed 100% gamma walkover survey on February 15, 2012. This survey confirmed the presence of the impacted areas from the initial survey and better defined the footprint of the radioactive materials. For example within the Building #102 area, five or six individual hot spots were identified between the building and the railroad tracks that covered approximately 1,000 square feet with gamma radiation measurements up to approximately 100,000 cpm on the Ludlum 2221 meter with 44-10

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scintillation detector. Details of this survey including some internal building surveys are presented in Summary of Findings Letter dated February 16, 2012.

In July 2012, the three focus areas of concern (AOC) were further characterized over a two day period through a subsurface Geoprobe investigation using 3" OD split spoon Geoprobe sampler. Thirty six borings were performed in total at the three locations to collect grab and composite samples in addition to gamma radiation measurements for background, split spoon cores, and down-hole borings. Details of this investigation are presented in the Summary of Findings Letter dated August 27, 2012 and summarized in the following bullets:

- (1) NORM is present in a few areas throughout the Facility within the initial two feet below ground surface
- (2) Radioactive rock and rock like material were often present within hot spot locations; however, three to four distinct physical characteristics were observed in various borings
- (3) The isotopic activity within all but 2 of the hot spot locations sampled exceeded New York State and Federal remediation guidance levels
- (4) Building #102 area possessed significantly more elevated isotopic concentrations compared to other Site locations (i.e., Pb-214, Th-232, and U-235 concentrations upwards of 647, 32, and 2.5 pCi/g versus 14, 2, and 0.7 pCi/g, respectively)

### **3.0 REMEDIATION OBJECTIVE**

The results of the gamma walkover surveys and field characterization effort indicated the presence of elevated levels of radioactive materials beneath the asphalt in a relatively high traffic area surrounding Building #102. Accordingly, this area was identified as the focus for immediate remediation and restoration, thus reducing gamma radiation levels as close to background as possible and releasing this area for continued everyday activities.

Removal of the impacted material had to be performed without the threat of radiological conditions above regulatory criteria and selected guidance levels; thereby eliminating or mitigating the potential for humans to ingest, inhale or come into dermal contact with radioactive particulates or be exposed to external radiation. The work activities included managing and minimizing exposure to radiologically contaminated material to As Low As Reasonably Achievable (ALARA); reducing contamination levels to meet the applicable release criteria; and to comply with applicable Nuclear Regulatory Commission (NRC), NYSDEC, and site specific requirements.

LATA's experience with this material in the Niagara Falls area enabled establishment of the site specific guidance value for the removal of radiologically impacted materials. With assistance from GRD, the project team adhered to the NYSDEC-approved field screening value for gamma radiation of approximately 10,000 counts per minute (cpm) as determined using a Ludlum model 2221 meter with 44-10 gamma scintillation detector/probe. This value is best described as approximately 1.5 times the background gamma radiation (i.e., 6,000 – 8,000 cpm) for the Niacet Facility that was previously established during gamma surveys and characterization efforts.

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LATA and GRD provided labor, materials, equipment, tools, supplies, transportation and disposal services, and radiological services necessary to complete the project including:

- Project management and NYSDEC regulatory interface;
- Mobilization, demobilization, site setup, and project documentation;
- Excavation and management of radioactive materials with elevated gamma radiation readings;
- Radiological surveys of in situ material, excavation material, construction equipment, waste containers, project personnel, and initial/final surface conditions;
- Continuous health and safety, health physics, and radiation safety support that included air monitoring and ALARA controls of project area; and
- Transportation and disposal of impacted materials.

The radiologically impacted materials discovered at the Site were removed, packaged, transported, and disposed in accordance with federal, state, and local regulations at US Ecology's Idaho facility: a licensed, out-of-state facility. All materials exhibiting gamma radiation levels that exceeded 10,000 cpm were further investigated through visual field observations, professional judgment of the radiological control technician to determine disposition of the material.

#### **4.0 SITE HEALTH, SAFETY, AND RADIOLOGICAL PROTECTION**

LATA considers the health and safety of our employees, the public and the environment of paramount importance. LATA with GRD began each work day with a Pre-job Safety Meeting that included a detailed discussion of the work activities expected that day. Therefore, each member of the project team had adequate knowledge of the anticipated work hazards, logistics, scheduling, and planning. Topics in the Pre-job Safety meeting included weather conditions, proper lifting techniques, housekeeping, slips trips and falls, waste packaging, biological hazards, heavy equipment logistics, radiological control zones, rail car logistics, and other hazards that may be encountered.

The Site Superintendent/Site Safety and Health Officer (SSHO) and Project Manager are OSHA 30 hour construction safety certified and together with the Radiation Safety Officer (RSO) are current in first aid/CPR and blood borne pathogens. The RSO ensured that all employees working on the field project were current with their annual certifications including a physical, 8 hour HAZWOPER refresher and radiation worker training (Note: personnel certifications can be produced upon request). Finally, the SSHO, RSO and the Project Manager briefed all workers on applicable work plans such as the Site Operations Plan (SOP), the Site Health and Safety Plan (HASP), Radiation Safety Plan (RSP) and the Radiation Work Permit (RWP) prior to the start of the field activities.

The radiological protection procedures utilized during the performance of the field activities were in accordance with the RSP and RWP developed for the Site. The RWP for the project is presented in **Appendix A**. The RSO had the ultimate decision making power regarding radiological safety for the Site, and together with the Senior Radiological Control Technician (RCT) managed the safety and health of the workers while conducting field operations within the

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contamination areas (CAs). At all times, ALARA practices were followed including maximizing distance from and minimizing time near radioactive materials; accordingly, personnel access to the CAs were logged on access registers that are presented in **Appendix B**. The registers indicate that all personnel were released from the CAs without possessing any radiological contamination above background.

Perimeter air monitoring was conducted on a daily basis during field activities and the filters were analyzed to determine if any airborne alpha or beta contamination was mobilized outside of the CA. The results of all perimeter air samples for the duration of the field activities were reviewed by LATA's Certified Health Physicist (CHP) and found to be less than 30% of the derived air concentrations (DAC) for the most stringent isotopes of concern for alpha and beta radiation (i.e., Th-232 and Pb-210). The DAC is a numerical limit representing a concentration that if breathed for a standard work year would reach the annual limit intake for that isotope/type of radiation. Results of the perimeter air samples (see survey 19 for details) and the CHP review table are presented in **Appendix C**.

## 5.0 CONSTRUCTION QUALITY CONTROL MANAGEMENT

The LATA PM in cooperation with the RSO and Superintendent was responsible for scheduling, directing, and recording the daily work functions including personnel man-hours, daily objectives, contamination/radiation control, waste excavation and packaging, and any issues or conflicts. Details of these activities including site conditions, temperature, progress, and waste generation were recorded by the PM and RSO on daily QC reports that are presented in **Appendix D**.

The most significant issue encountered during this project was locating utilities in the subsurface that could intersect excavation area limits. Niacet is an active chemical manufacturing facility with many utility lines throughout the site, both overhead and in the ground. The characterization activities from July 2012 indicated that the NORM should not be located deeper than 2 feet below ground surface (bgs). However, two of the five excavation areas contained material down to approximately 4 feet bgs. Unfortunately, deliberate passes through the subsurface with the large excavator was not sufficiently effective to avoid breaching a 2" natural gas line on day three of the project. A Niacet/LATA team was able to repair the gas line without injury and continue through the project without any further incidents. The unknowns in the ground impacted the productivity of excavation, but the following mitigation strategy was effective:

- (1) obtain a smaller excavator more conducive to precise digging,
- (2) instill a mandate to obtain approval from Niacet for excavation below 2 feet bgs, and
- (3) employ the use of hand shoveling below 2 feet bgs, as feasible.

The principal aspect of quality control in the field was associated with the accuracy, reliability, and precision of radiation detection equipment to locate subsurface material. LATA's RSO and its HP subcontractor, GRD, were primarily responsible for the effectiveness in locating the COCs in the subsurface; whereas GRD was solely responsible for instrumentation being adequately calibrated, set up, and checked daily. Instruments used regularly at the site included gamma scintillation detectors, dose meters, and alpha/beta/gamma GM detectors. The daily

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performance checks for all radiation field instruments are presented in **Appendix E** (Note: instrument certifications can be produced upon request).

## 6.0 MOBILIZATION AND SITE SETUP

LATA mobilized to the Niacet Facility to initiate field activities on Monday, December 3, 2012. Day one activities were limited to PM, Superintendent, and RSO travel in addition to small hand and power tools delivered by trailer. As heavy equipment was delivered to the Site on Tuesday, inbound inspections and radiation and contamination surveys were performed; the results of which were recorded on the survey log and survey worksheets and are presented in **Appendix F**. The primary equipment and supplies mobilized to the site consisted of a large excavator, high capacity front end loader, small excavator, heavy duty pick-up truck, gondola rail cars, super load wrappers for waste packaging, diesel and gasoline, radiological detection equipment, asphalt saw cutter, hand and power tools, miscellaneous supplies, and PPE. Waste packaging and gondola rail car mobilization was coordinated through LATA, Niacet, and the transporter (MHF) and was previously completed during the week of November 27<sup>th</sup>, 2012. Mobilization and Site setup was completed on Tuesday, December 4, 2012; and no radiological contamination was observed on any incoming equipment or materials. See surveys 2-4, 7 and 8 for details.

An initial Gamma Walkover Survey (GWS) of the AOCs within vicinity of Building #102 was performed prior the start of any saw cutting activities to confirm and mark the elevated radiation areas. See survey 1 for details. The GRD RCT performed the GWS using a Ludlum 2221 meter with a GX-2 gamma scintillation probe, and based on the results of the GWS, established six individual excavation boundaries; four on the asphalt and two on the railroad ballast. The gamma radiation measurements from the surface ranged from as low as 25,600 cpm to 83,400 cpm.

Individual CAs were setup around each delineated excavation area with yellow and magenta rope and signage marking it as a controlled area. Niacet provided their unique caution tape that was also used in conjunction with the radiation rope, as this tape is universally known to Site employees as a hazard no-entry zone. Since the radioactive materials were in the subsurface beneath asphalt and ballast with limited exposure, it wasn't necessary to construct all CAs immediately. Instead, the CAs were established in a step-wise progression as the project team removed radioactive material from and subsequently released each excavation. This remediation design lessened the impacts on day to day Site operations and did not reduce the efficiency of waste loading capabilities. Furthermore, this excavation approach prevented the need for establishing large support zones (SZ) in non impacted areas, and was conducive for utilizing small contamination reduction zones (CRZ) adjacent to the small CAs. Staging areas for material removed from each excavation were also not needed. All radioactive material removed for disposal was directly loaded into the lined gondola railcar.

## 7.0 EXCAVATION OF RADIOACTIVE MATERIAL

Excavation of the NORM in the subsurface beneath the asphalt and railroad ballast was accomplished over a three day period primarily using track excavators of various sizes. Initially,



a John Deere 225D equipped with a 1 CY bucket was used to excavate the AOCs once the asphalt was cut using a 3525 Target Supersaw. Support equipment included a small KX057-4 Kubota backhoe with ¼ CY bucket, a John Deere 135D equipped with ¾ CY bucket, and rubber tire loader that was only used to move and load stone backfill and never entered the CAs.

The remediation work plans were based upon previous survey and sampling efforts and described the design approach for the voluntary removal of radioactive material in the subsurface identified above approximately 10,000 cpm on a gamma radiation scintillation detector. Accordingly, no additional sample collection efforts were required or necessary during this remediation for waste profiling, characterization, release verification, or otherwise. It was anticipated that the six AOCs would yield approximately 150 tons of impacted material that would be excavated and transported out of State for proper disposal. No excavated material was staged on-site prior to waste packaging, and no significant quantities of radioactive material was observed to be located outside of the six AOCs. The project team moved from excavation to excavation, removing non-compliant material in approximately 6 inch lifts, placing it directly into the gondola railcar, and releasing the area upon determination that no significant radioactive materials remained.

Beginning with the largest AOC (HSB2/3) on December 5<sup>th</sup>, the vertical and horizontal extent of excavation proceeded under the guidance of the RSO and RCT until the excavation was determined to be free of significant radioactivity or a ‘target depth’ was achieved. As the RCT performed surveys *in situ* or in the excavator bucket, material possessing elevated gamma radiation and determined to be radioactive waste was directly loaded into the lined gondola rail car. Material removed from this area, which included very small grain size soil up to 5” minus rock, measured up to approximately 675,000 cpm on the gamma scintillation detector and approximately 0.7 mR/hr on the Bicron micro R meter. A layout of this approximately 150 SF area of concern including excavation profile and survey results is presented in survey 5 in **Appendix F**. Material not observed to emit significant gamma radiation or elevated radioactive material at the ‘target depth’ was left within the excavation. The ‘target depth’ for this project was chosen to be approximately 2 feet bgs; a depth below which radioactive material was left in place but was determined through professional judgment not to cause significant exposure at the surface once the area was restored. For example, an area within HSB2/3 continued to read 130,000 cpm at 4 feet bgs, but measured at or below the guidance level after restoration as shown in survey 18.

During the excavation of HSB2/3 AOC it was quickly realized that the John Deere 225D excavator with 1 CY bucket was too large for the modest sized AOCs and the limited asphalt area in proximity to Building #102. The larger piece of equipment was more productive for excavation and loading large quantities into the gondola car; however, it proved to be too cumbersome within the tight project limits. Prior to release of the HSB2/3 AOC, a subsurface plastic gas line was breached as the 1 CY bucket attempted to remove the remaining radioactive material located close to HSB 3 as shown on survey 5. The gas line was repaired without injury or further issue and the 225D was replaced by the John Deere 135D with ¾ CY bucket the next day. The asphalt saw cutter was no longer needed as well, and both pieces of equipment were

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released without contamination as shown in surveys 6 and 9. Excavation of HSB2/3 was completed after day one.

The second day of remediation was very effective with the new excavator. The remaining asphalt AOCs HSB1 and HS-6 and 7 were addressed using the same approach at HSB2/3. In addition to the use of the new John Deere excavator, the small Kubota backhoe was very effective in the tight hot spot areas within HSB1. Adhering to the new ‘digging protocol’ subsequent to the gas line puncture, hand shoveling within the excavations was employed regularly for radioactive material beneath 2 feet bgs. HS-7 AOC primarily consisted of the removal of two very large pieces (i.e., 10” minus) of highly elevated radioactive material ranging up to 657,000 cpm gamma radiation and approximately 0.3 mR/hr dose rate. HSB1 AOC possessed a number of large pieces of radioactive material that were removed down to 4 feet bgs. The material generally measured up to 650,000 cpm gamma radiation with one piece over 1 million cpm and up to 0.7 mR/hr dose rate. Lastly, HS-6 AOC was similar to HS-7 with very few but large pieces of radioactive material ranging well over 1 million cpm and approximately 0.7 mR/hr dose rate. These three AOCs were completed on December 6<sup>th</sup>, which included loading material into rail car. See surveys 10-12 in **Appendix F** for details.

On the final day of excavation, HS-4 and 5 were addressed within the ballast on the railroad tracks. Use of the small Kubota backhoe was essential for both of these areas where the logistics between rail spurs and railcars was very tight. These areas were similar to HSB2/3 area with respect to radioactive material at depth. Both HS-4 and 5 were excavated down to 2 to 3 feet bgs; however, readings remained elevated up to 20,000 cpm. Due to (1) the close proximity of the rail lines where a deep excavation could impact stability, and (2) the relatively low radiation measurements at 2 to 3 feet bgs where exposure would be reduced after restoration, it was decided using professional judgment that each excavation was sufficient to be released for backfill. See surveys 13 and 14 for details. The affective radiologically elevated material from the six AOCs was completed on December 7, 2012.

## **8.0 TRANSPORTATION AND DISPOSAL OF RADIOACTIVE MATERIAL**

The remediation layout for Building #102 project was specifically designed so that the excavated radioactive material could be directly loaded into a lined gondola railcar from the bucket of the excavator or backhoe avoiding the need for staging and loading. Two 110 ton gondola cars with two super load wrappers were mobilized to the Site anticipating approximately 150 tons of material. The wrappers were shipped separately folded on pallets and were unwrapped and positioned into the gondola car prior to excavation of HSB2/3 AOC. See **Appendix G** for gondola car details.

The first gondola car was staged on the western spur inside the Site closest to the excavation, while the second gondola was staged immediately outside the south side of the Facility near the contractor parking lot. Ultimately, the surgical approach employed by the project team allowed for a reduced quantity of material and only a single gondola car was utilized. Despite the more deliberate excavation with the smaller excavators, the project remained on schedule and costs were saved for waste transportation and disposal. The loaded railcar with the packaged radioactive material was delivered to an out-of-State disposal facility, and the empty gondola car

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was sent back to the originating facility. See **Appendix G** for the certificates of disposal from US Ecology Idaho indicating receipt and disposal of the material via dump truck. US Ecology possesses a trans-load facility that enables rail shipments to be offloaded into truck transportation prior to placement in the landfill. .

The decision to direct load the radioactive material for disposal was made before the July 2012 characterization effort when a cost-benefit analysis indicated that rail car transportation would be most efficient. This decision required characterization and profiling of the waste material for shipment to US Ecology prior to any remediation or mobilization. See **Appendix G** for the complete waste profile that includes a waste acceptance addendum for specific calculations pertaining to the isotopic concentrations and disposal restrictions.

Once the NORM was packaged securely within the super load wrapper, the gondola was swiped and surveyed by GRD before leaving the site. This was performed using a Ludlum 12 with a 44-9 probe and a Bicron micro-R meter to ensure USDOT and disposal facility specified contamination levels and dose rates were acceptable. See survey 17 in **Appendix F** for the results, which include dose rates up to 0.3 mR/hr and contamination measurements within two times background.

The remaining component to the waste transportation and disposal activities included the generation of the shipping paperwork and manifest. LATA gathered this information and delivered signed copies of the shipping package to both the transporter and the disposal company (i.e., MHF and US Ecology). The original three page manifest that accompanied the shipment out of Niacet was ultimately supplemented with an additional three pages of tracking and waste information. The six page shipping paperwork package including the following (See fully executed waste manifest provided in **Appendix G**):

- Bill of Lading with generator, carrier, and disposal company information; package specific characteristics; and consignee and consignor loading/arrival/schedule times and signatures
- Additional single page manifest for trucking company responsible for transportation from trans-load facility to landfill
- Exclusive use shipment instructions with potential hazards, emergency response procedures and public safety information
- QA checklist for LSA-1 shipments to ensure packaging does not leave generator with incorrect labels, placards, or packaging
- Return to service/decontamination form for the emptied gondola car from which the super load wrapper and waste was removed. This is accompanied by a DPM calculation worksheet to document the wipe sample results of the gondola car.

## **9.0 RESTORATION, RELEASE, AND DEMOBILIZATION**

After completion of the removal activities, the remaining equipment that was within the CA and therefore had the potential to contact radiological material was surveyed for any radiological contamination. These items included shovels, boots, brooms, chairs, reusable barriers, and the

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excavation equipment. The radiological surveys for the excavator and backhoe are provided in surveys 15 and 16 in **Appendix F**. Discarded items such as tape, miscellaneous plastic and PPE were placed in the gondola before final packaging and shipped with the radioactive waste material. All personnel were also surveyed for free release prior to leaving the CA. No measureable contamination above two times background was observed on any personnel, equipment, or materials that warranted decontamination.

The six excavation areas were restored over a four day period including backfill stone placement, tamping and compacting of backfill, and asphalt placement and touch-up. Three inch minus crushed stone that was delivered to the Site earlier in the week was placed in the excavations in six inch lifts and compacted with the end of the excavation bucket and a walk-behind vibrating compactor. The stone was used as ballast within the excavations on the railroad tracks, where it was placed up to grade and compacted with the backhoe. Stone was not needed in HS-7 excavation due to the removal of only a few very large pieces of radioactive material. The area was simply compacted and made ready for the asphalt workers. Restoration was completed by Friday, December 14, 2012.

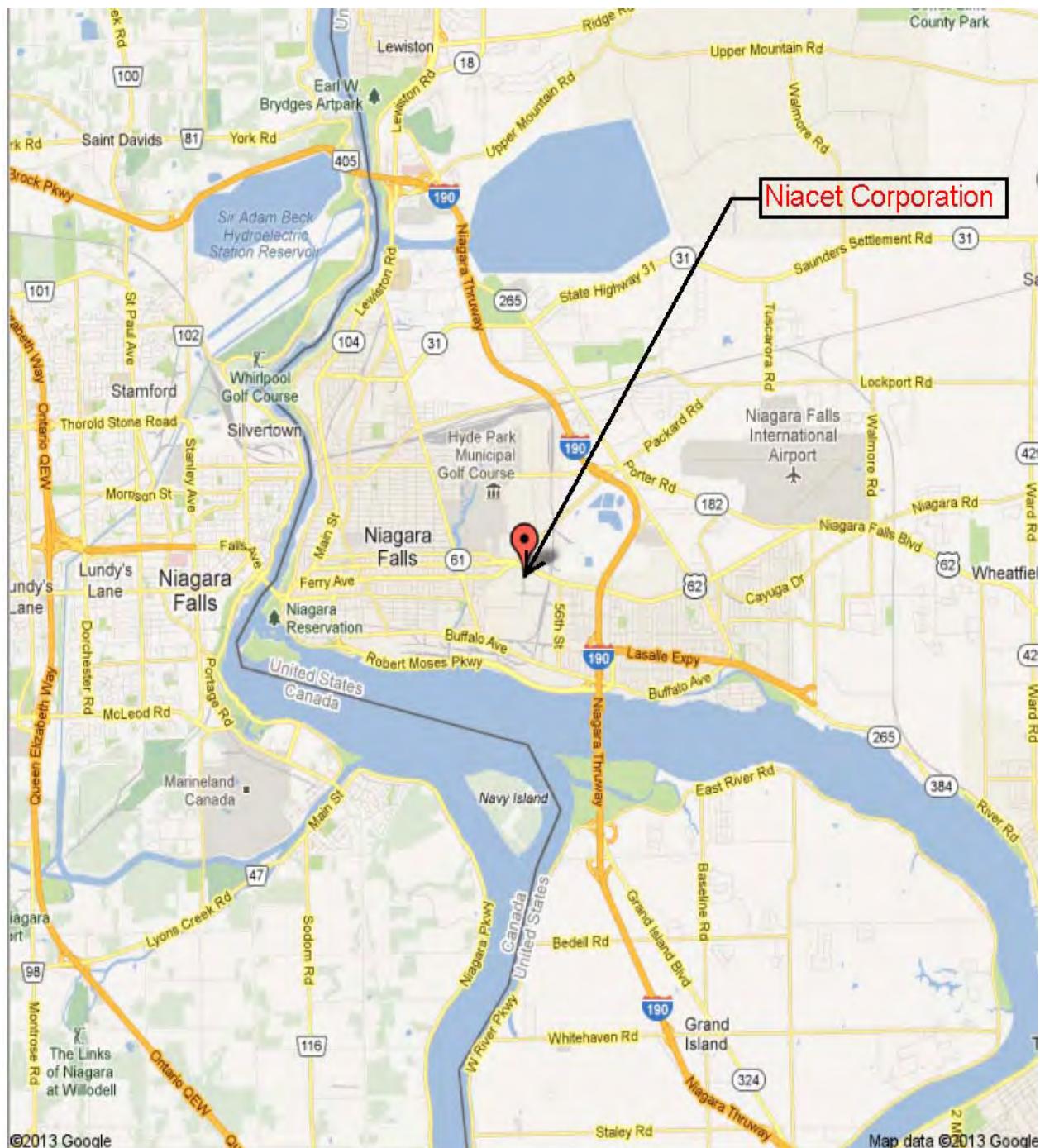
Once the areas were backfilled and topped with asphalt, as needed, the entire project area was surveyed for release. All restored areas on the pavement between the rail spur and Building #102 were approximately 10,000 cpm or less as measured by the Ludlum 2221 with GX-2 probe. There were a few discrete elevated areas up to approximately 15,000 cpm to the north of excavation HSB1; however, these areas were recognized during the characterization phase of the project and due to the inaccessibility and low exposure rate were discussed with Niacet to be outside the scope of this project. The ballast remediation areas continued to read up to 13,000 cpm, but this was more than half reduction in gamma radiation exposure from initial conditions. In the end, the Building #102 area was remediated from upwards of 90,000 cpm gamma radiation to all areas less than 13 – 15,000 cpm. See surveys 1 and 18 in **Appendix F** for details. Personnel, equipment, railcars, and waste were removed from the site by December 21, 2012. Photographs of the project are included in **Appendix H**.

## 10.0 REFERENCES

1. *NIA-PLA-WP-003*, LATA Site Operations Plan for the Remediation of Building 102 Area, Niacet Corporation, Inc., November 2012
2. *NIA-PLA-WP-005*, LATA Waste Management Plan for the Remediation of Building 102 Area, Niacet Corporation, Inc., November 2012
3. *NIA-PLA-WP-004*, LATA Transportation and Disposal Plan for the Remediation of Building 102 Area, Niacet Corporation, Inc., November 2012
4. *NIA-PLA-WP-002*, LATA Site Specific Radiological Safety Plan for the Remediation of Building 102 Area, Niacet Corporation, Inc., November 2012
5. *NIA-PLA-WP-001*, LATA Health and Safety Plan for the Remediation of Building 102 Area, Niacet Corporation, Inc., November 2012

<b>LAWA</b>	<b>Title</b> Completion Report	<b>Document No.:</b> NIA-PLA-WP-006	<b>Revision No.:</b> 0
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**Figure 1**  
**Vicinity Map**



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**Figure 2**

**Project Area Map**

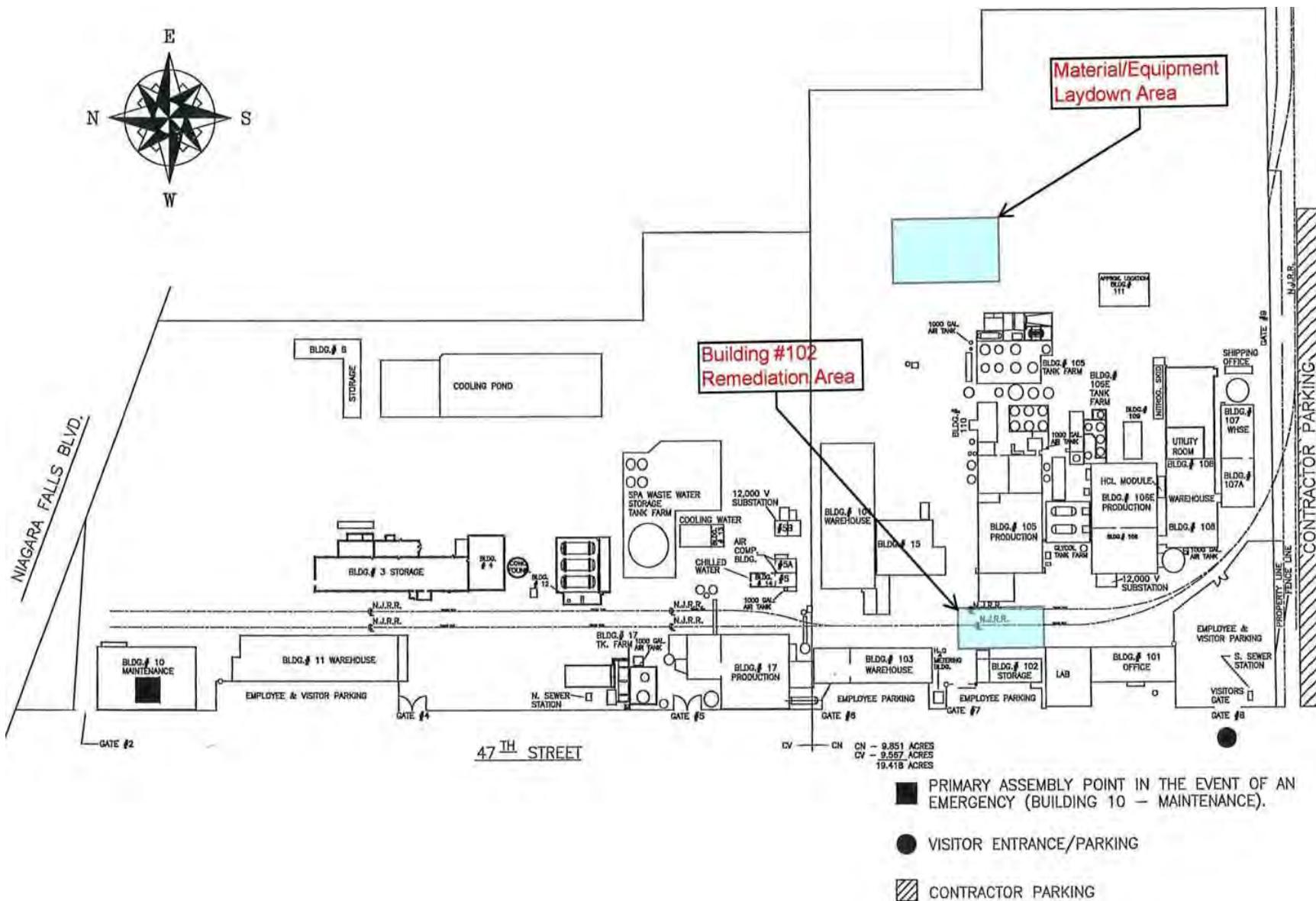


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**Title**

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## **Appendix A**

### **Radiation Work Permit (RWP)**



#RWP 120312Niacet Rad

### Radiation Work Permit (RWP)

Work Description:		<input type="checkbox"/> General <input checked="" type="checkbox"/> Specific	Work Location Niacet Facility	
Saw cutting, excavation, loading, and packaging of radioactive materials from the subsurface near Building 102 at Niacet Facility, Rock like materials down to approximately 2 feet below ground surface.		Est. Start Date/Time December 3, 2012		
		Requested By Jason Brydges		
		Request Date November 30, 2012		
<b>Hazardous Conditions</b>			<b>Surveys</b>	
Radionuclides Present	Radiation Levels	Other (Safety, etc.)	Type	Number Date By
U-238 decay chain	up to 1M cpm on rock matrix		SEE GRO SURVEY LOG FOR NIACET 2012 RAD	
Th-232 decay chain	gamma scin. device	soil matrix		
U-235 decay chain	up to 0.050 mrem/hr			
	on contact			
<b>Required Personnel Protective Clothing and Equipment</b>				
Head/Eyes	Feet/Legs	Body		
Hard Hat	<input checked="" type="checkbox"/> Steel Toe Work Shoes	<input checked="" type="checkbox"/> Cotton Coveralls	<input type="checkbox"/>	
Safety Glasses	<input checked="" type="checkbox"/> Disposable Boot Covers	<input type="checkbox"/> Tyvek Coveralls	<input checked="" type="checkbox"/>	
Monogoggles	<input type="checkbox"/> Tyvek Booties	<input checked="" type="checkbox"/> Polypropylene	<input type="checkbox"/>	
Face Shield	<input type="checkbox"/> Rubber Boot Covers	<input checked="" type="checkbox"/> Water Proof Coveralls	<input type="checkbox"/>	
Other (Specify):	<input type="checkbox"/> Other (Specify)	<input checked="" type="checkbox"/> Other (Specify)	<input type="checkbox"/>	
	Rubber boots an option			
Respiratory	Hands	Miscellaneous		
Full-face (Negative Pressure)*	<input type="checkbox"/> Cotton Liners (optional)	<input type="checkbox"/>	<input type="checkbox"/> Tape Gloves & Boots to Coveralls	
Powered Air Purifying*	<input type="checkbox"/> Latex Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/> Safety Belt With Lanyard	
* Specify Cartridge or Canister Type Below	<input type="checkbox"/> Rubber Gloves	<input checked="" type="checkbox"/>	<input type="checkbox"/> Hearing Protection	
Other (Specify):	<input checked="" type="checkbox"/> Leather Work Gloves	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Face Shield	
Dust mask worn as needed	<input type="checkbox"/> Cotton Work Glove	<input type="checkbox"/>	<input type="checkbox"/> Other (Specify):	
<b>Special Instructions and Requirements</b>			Only as needed.	
1 All personnel surveyed prior to exit RCA			Dosimetry	Indiv. Group
2 Impacted materials placed directly into gondola railcar			TLD Badge	N/A
3 100% scan until visual confirmation of like materials. Lead rad tech to concur with decision of <100% scan				
4 Dosimetry not needed per Rad Safety Plan - details there				
5 Full tyvek a prerequisite for entrance into RCA unless RSO exception			IH Monitoring	Indiv. Group
6 Use of wet decontamination mandatory for non disposable PPE			N/A	
<b>Expiration Date/Time</b>				
<b>Approvals</b>		Date	Termination Date	
Project HP/RSO		12-3-12	Project HP/RSO	
			Reason:	

<b>NIA</b>	<b>Title</b> Completion Report	<b>Document No.:</b> NIA-PLA-WP-006	<b>Revision No.:</b> 0
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## **Appendix B**

### **Controlled Area Access Registers**



## Title

Document No.: NJA-PLA-WP-006

## **Revision No.:**

GRD INC

**D INC.** Greater Radiological Dimensions

1527 Ridge Road, Lewiston, NY 14092 - Office 716-754-2622 - Fax

Sheet: / of /

Date: 13.5.12

**Location:** \_\_\_\_\_

## Controlled Area Access Register

**SURVEY INSTRUMENT:**

Scalar / Meter Model and Serial Number: Mod 12-121349

Detector Model and Serial Number: 44-9 / RN 716106

Efficiency: 14,13 Background (cpm): 40

CALCULATION:  $1000 * \text{Efficiency (0.2)} + \text{Background (cpm)} = \underline{\underline{40.014}}$  (threshold in cpm) = 1000 (dpm/100 cm<sup>3</sup>)



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## Title

### Completion Report

Document No.:  
NIA-PLA-WP-006

Revision No.:  
0

GRD INC

**Greater Radiological Dimensions**

1527 Ridge Road, Lewiston, NY 14092-2654 - Office 716-754-2622 - Fax

Sheet: 1 of 1

Date: 12-6-12

**Location:** \_\_\_\_\_

## **Controlled Area Access Register**

**SURVEY INSTRUMENT:**

Scalar / Meter Model and Serial Number: Model 12-121349

Detector Model and Serial Number: 44-9/RN - 716106

Efficiency: 14.13

Background (cpm): 40

CALCULATION:  $1000 * \text{Efficiency (0.1)} + \text{Background (cpm)} = 40.014$  (threshold in cpm) =  $\frac{1000}{40.014}$  (dpm/100 cm<sup>2</sup>)



## Title

Document No.:  
NJA-PLA-WP-006

**Revision No.:**

GRD INC

Greater Radiological Dimensions

1527 Ridge Road, Lewiston, NY 14092-2654 - Office 716-754-2622 - Fax

Sheet: 1 of 1

Date: 12.7.12

**Location:** \_\_\_\_\_

## **Controlled Area Access Register**

**SURVEY INSTRUMENT:**

Scalar / Meter Model and Serial Number: Model 12-131349

Detector Model and Serial Number: 44-9124-716106

Efficiency: 14, 13  
C/H

Background (cpm): 90

CALCULATION:  $1000 * \text{Efficiency (0.14)}$  + Background (cpm) = 40,014 (threshold in cpm) = 1000 (dpm/100 cm<sup>2</sup>)

<b>NIA</b>	<b>Title</b> Completion Report	<b>Document No.:</b> NIA-PLA-WP-006	<b>Revision No.:</b> 0
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## **Appendix C**

### **Air Monitoring Results**



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**Title**

Document No.:  
NIA-PLA-WP-006

**Revision No.:**

Radiological Survey Form							Survey #: Niacet 2012 Rad 0019			
							Date: 12-18-12		Project #: Niacet 2012 Rad	
Survey Description: LOW VOL AIR MONITOR FILTER RESULTS										
Model / Probe	Model SN #	Probe SN #	Cal. Due	Background (cpm)		Efficiency (c/d)		MDA (dpm)		
				$\alpha$	$\beta$	$\alpha$	$\beta$	$\alpha$	$\beta$	
BC4/NA	582	NA	1-7-13	NA	27.4	NA	14.18	NA	206	
L200/Y43-10	29790	PR120785	1-7-13	.4	NA	29.40	NA	20	NA	
NA	/	/	/	/	/	/	/	/	/	
Key:  Direct reading (1 min) All dose rates are in $\mu\text{R}/\text{hr}$				Wipe test (100 $\text{cm}^3$ )		Net		Net		
						Direct (cpm/100 $\text{cm}^3$ )	Loose (cpm/100 $\text{cm}^3$ )	Direct/Loose (dpm/100 $\text{cm}^3$ )		
Notes: Ludlum 2221 uses a Ludlum 44-10 scintillator probe (cpm) Ludlum 2929 uses a Ludlum 43-10-1 probe (cpm) Ludlum 3 uses a Ludlum 44-9 GM probe (cpm) Ludlum 19 is an ion chamber instrument				MAT	$\alpha$	$\beta$	$\alpha$	$\beta$	$\alpha$	$\beta$
				1	/	1	29			
				2	N	2	27			
				3	/	2	28			
				4	A	1	27			
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**Survey Performed by:**

James H. Hall Dee H. Hall  
Print/Sign

12.18.12

Date \_\_\_\_\_

**Survey Reviewed by:**

Jason Bryce es (RSO) /  
Print/Sign

Date



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	<b>Sample Alpha Activity (dpm)</b>	<b>Sample Beta Activity (dpm)</b>	<b>Alpha Count Concen. (uCi/cc)</b>	<b>Beta Count Concen. (uCi/cc)</b>	<b>Fraction Occup or Effluent Limit Alpha</b>	<b>Fraction Occup or Effluent Limit Beta</b>	<b>Alpha MDA (uCi/cc)</b>	<b>Beta MDA (uCi/cc)</b>
1	5	205	6.71E-14	2.84E-12	0.13	0.03	2.67E-13	2.65E-12
2	9	190	1.29E-13	2.65E-12	0.26	0.03	2.67E-13	2.65E-12
3	9	197	1.29E-13	2.75E-12	0.26	0.03	2.67E-13	2.65E-12
4	5	190	6.71E-14	2.65E-12	0.13	0.03	2.67E-13	2.65E-12

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## **Appendix D**

### **Daily Quality Control Reports**



Title  
Completion Report

Document No.:  
NIA-PLA-WP-006

Revision No.:  
0



Niacet Corporation Building 102 Remediation  
Project Number: 70017.11170.0004  
Daily Quality Control Report

Date: 12/03/2012 Day: Monday Compiled Ron Voorheis  
By: X

**OBSERVATIONS**

AM Weather Temp (°F) 40	Mostly cloudy – overcast skies
PM Weather Temp (°F) 56	Mostly cloudy – overcast skies

**PERSONNEL**

Name	Company	Position	Hours		
			From	To	Approx. Total (minus lunch)
Ron Voorheis	LSRS	Project Manager	0700	1600	10
Dave Richards	LSRS	Site Supervisor	0700	1600	10
Jim Hall	GRD	Lead Technician			
Jason Brydges	LATA	Program Manager	1400	1600	2
<b>Total Daily Man Hours Worked</b>			22		

**Visitors On-Site:**

Name	Company	Hours	
		From	To
None			

**MATERIALS/EQUIPMENT DELIVERED TO SITE:**

Company	Material/Equipment	Quantity	Disposition/Notes
Hertz Equipment	JD 225 Excavator	1	Staged for inbound
Hertz Equipment	JD 325 RT Loader	1	Staged for inbound



Title  
Completion Report

Document No.:  
NIA-PLA-WP-006

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0



**WORK DESCRIPTION:** Activities scheduled for today included mobilization of equipment and staging for inbound inspections that will be done prior to start of work. Visit the site for the first time and plan the schedule for the upcoming week.

**GENERAL NOTES:** Dave and Ron mobilized from Columbus, and Hertz delivered excavator and loader to the site after 1400 hrs. Jason met Dave and Ron at Niacet to formalize the introduction between LATA and Niacet project personnel. This included Sal D'Angelo, John Bielicki, and Tim Kolb from Niacet, who were to be the primary contacts for the project.

**PROBLEMS/OBSERVATIONS/CONFLICTS:** No observations

**HEALTH & SAFETY LOG:**

No pre-work safety meeting was held, as no site work was performed.

**Daily Site Walkdown**

Area/Item Inspected	Corrective Action Required?		Inspection by/Notes
	YES*	NO	
			No inspections today

\*Problems Encountered/Corrective Actions Taken (if answered YES above):



Title  
Completion Report

Document No.:  
NIA-PLA-WP-006

Revision No.:  
0



Niacet Corporation Building 102 Remediation  
Project Number: 70017.11170.0004  
Daily Quality Control Report

Date: 12/04/2012 Day: Tuesday Compiled: Ron Voorheis  
By: X

**OBSERVATIONS**

AM Weather Temp (°F) 44	Mild, overcast skies, with mist/rain.
PM Weather Temp (°F) 63	Warm, overcast, with steady rain.

**PERSONNEL**

Name	Company	Position	Hours		
			From	To	Approx. Total (minus lunch)
Ron Voorheis	LSRS	Project Manager	0700	1730	10
Dave Richards	LSRS	Site Supervisor	0700	1730	10
Jim Hull	GRD	Lead Technician	0700	1730	10
Jason Brydges	LATA	Program Manager	0700	1730	10
<b>Total Daily Man Hours Worked</b>					40

**Visitors On-Site:**

Name	Company	Hours	
		From	To
None			

**MATERIALS/EQUIPMENT DELIVERED TO SITE:**

Company	Material/Equipment	Quantity	Disposition/Notes
Hertz Equipment			
Hertz Equipment			



Title  
Completion Report

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0



**WORK DESCRIPTION:** Stage rail car; layout/survey excavation locations; and start excavation at the north side of the site. Ordered 3" minus crushed stone for backfill.

**GENERAL NOTES:** Met John and Sal of Niacet at front Administration Building with our subcontractor, GRD -Jim Hull. All workers needed Site H&S training with John Bielicki. Jason was already trained. Performed our daily requirement to sign in at maintenance with Tim Kolb and receive work order for the day. Signed in at maintenance and received the excavation/hot work permit. LATA discussed further the plan of the day and the framework for the entire excavation with Niacet managers. Niacet generated a garden hose for water use at the site and provided Niacet specific barrier tape to notify workers of excavation activities. Set up barricades, rope, air monitor and entry areas radiation/contamination zone. Saw cut two of the larger areas at building 102 that included original hot spot boring locations HSB2 and 3. Due to the weather, saw cutting and breaking up asphalt was all that was performed. Super load wrapper was not installed into gondola car.

**PROBLEMS/OBSERVATIONS/CONFLICTS:** Consistent, misty and light rain prevented project team from generating any radioactive materials.

**HEALTH & SAFETY LOG:**

Plan of the day meeting held prior to work starting.

**Daily Site Walkdown**

Area/Item Inspected	Corrective Action Required?		Inspection by/Notes
	YES*	NO	
			No inspections today

\*Problems Encountered/Corrective Actions Taken (if answered YES above):



Title  
Completion Report

Document No.:  
NIA-PLA-WP-006

Revision No.:  
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Niacet Corporation Building 102 Remediation  
Project Number: 70017.11170.0004  
Daily Quality Control Report

Date: 12/05/2012 Day: Wednesday Compiled Ron Voorheis  
By: X

**OBSERVATIONS**

AM Weather Temp (°F) 26	Cool early, mostly cloudy, no recordable precipitation, very windy.
PM Weather Temp (°F) 44	Mostly Cloudy

**PERSONNEL**

Name	Company	Position	Hours		
			From	To	Approx. Total (minus lunch)
Ron Voorheis	LSRS	Project Manager	0700	2330	16
Dave Richards	LSRS	Site Supervisor	0700	2330	16
Jim Hall	GRD	Lead Technician	0700	2130	14
Jason Brydges	LATA	Program Manager	0700	2330	16
<b>Total Daily Man Hours Worked</b>				60	

**Visitors On-Site:**

Name	Company	Hours	
		From	To
None			

**MATERIALS/EQUIPMENT DELIVERED TO SITE:**

Company	Material/Equipment	Quantity	Disposition/Notes
Hertz Equipment			
Hertz Equipment			



**WORK DESCRIPTION:** Finish saw cutting all areas of concern, remove asphalt from focus areas, and begin excavation and loading gondola car with impacted soils. Received four, 20 ton loads of 3" minus crushed stone for backfill.

**GENERAL NOTES:** Signed in at maintenance and received the excavation/hot work permit. Placed load wrapper in gondola car and started excavation in the HSB 2/3 area, which is the largest of all 'hot' areas. Found one dead electrical conduit and one unknown conduit in the north half of the excavation at the north of the Building 102 area. Removed quite a bit of material from this one location and excavated much deeper than initially anticipated (3-4 feet bgs). When excavating in the south end of this hole we hit and ruptured a two inch plastic gas line. LATA and Niacet safely stopped work, and we had an incident review meeting. We were directed to stop any excavation work until we could do a corrective action review. We worked with Niacet maintenance to assist their contractor in making the repairs. Jason and Ron worked on a letter to Niacet which outlined the corrective actions and path forward to prevent this from occurring again.

**PROBLEMS/OBSERVATIONS/CONFLICTS:** Ruptured a gas line at 1430 hours today. Corrective actions provided to Niacet include changing the JD 225 excavator out with a JD135 size and adding a mini excavator to help excavate around utilities and in tight places.

**HEALTH & SAFETY LOG:**

Plan of the day meeting held prior to work starting. This included a briefing by RSO regarding the requirements of the radiation work permit (RWP).

**Daily Site Walkdown**

Area/Item Inspected	Corrective Action Required?		Inspection by/Notes
	YES*	NO	
			No inspections today

\*Problems Encountered/Corrective Actions Taken (if answered YES above):



Title  
Completion Report

Document No.:  
NIA-PLA-WP-006

Revision No.:  
0



Niacet Corporation Building 102 Remediation  
Project Number: 70017.11170.0004  
Daily Quality Control Report

Date: 12/06/2012 Day: Thursday Compiled Ron Voorheis  
By: X

**OBSERVATIONS**

AM Weather Temp (°F) 22	Mostly clear, cold and windy
PM Weather Temp (°F) 40	partly Cloudy

**PERSONNEL**

Name	Company	Position	Hours		
			From	To	Approx. Total (minus lunch)
Ron Voorheis	LSRS	Project Manager	0700	1730	10
Dave Richards	LSRS	Site Supervisor	0700	1730	10
Jim Hall	GRD	Lead Technician	0700	1730	10
Jason Brydges	LATA	Program Manager	0700	1730	10
<b>Total Daily Man Hours Worked</b>				40	

**Visitors On-Site:**

Name	Company	Hours	
		From	To
None			

**MATERIALS/EQUIPMENT DELIVERED TO SITE:**

Company	Material/Equipment	Quantity	Disposition/Notes
Hertz Equipment	JD 135 excavator	1	Replace 225
Hertz Equipment	Kobelco 50	1	Additional



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**WORK DESCRIPTION:** Switch out machines this morning and continue to excavate radioactive materials from the subsurface within the 6 delineated areas within building 102 area. Received two more loads of 3" minus crushed stone for backfill.

**GENERAL NOTES:** Signed in at maintenance and received the excavation/hot work permit. Finished and backfilled the north excavation that contained HSB 2/3, and moved to the two spots along the east side of the building. Due to the new approach to excavating with more precision and being cognizant of the subsurface utility lines, more care was taken to identify exact location of impacted materials. With the smaller bucket/excavator and hand held shovels, operations slowed a bit, but volume of material delivered to gondola was lessened.

**PROBLEMS/OBSERVATIONS/CONFLICTS:** Corrective action plan in place from previous day's lessons learned, and work continued in the other asphalt areas.

**HEALTH & SAFETY LOG:**

Plan of the day meeting held prior to work starting.

**Daily Site Walkdown**

Area/Item Inspected	Corrective Action Required?		Inspection by/Notes
	YES*	NO	
			No inspections today

\*Problems Encountered/Corrective Actions Taken (if answered YES above);



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Niacet Corporation Building 102 Remediation  
Project Number: 70017.11170.0004  
Daily Quality Control Report

Date: 12/07/2012 Day: Friday Compiled Ron Voorheis  
By: X

**OBSERVATIONS**

AM Weather Temp (°F) 36	Mostly cloudy, cool, slight intermittent precipitation
PM Weather Temp (°F) 47	Mostly cloudy, cool, slight intermittent precipitation

**PERSONNEL**

Name	Company	Position	Hours		
			From	To	Approx. Total (minus lunch)
Ron Voorheis	LSRS	Project Manager	0700	1730	10
Dave Richards	LSRS	Site Supervisor	0700	1730	10
Jim Hull	GRD	Lead Technician	0700	1730	10
Jason Brydges	LATA	Program Manager	0700	1730	10
<b>Total Daily Man Hours Worked</b>				40	

**Visitors On-Site:**

Name	Company	Hours	
		From	To
None			

**MATERIALS/EQUIPMENT DELIVERED TO SITE:**

Company	Material/Equipment	Quantity	Disposition/Notes
Hertz Equipment	Walk behind tamper	1	Picked up at Hertz



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**WORK DESCRIPTION:** Finish excavation of impacted areas and release them. Tighten up super load wrapper within rail car and prepare for restoration.

**GENERAL NOTES:** Signed in at maintenance and received the excavation/hot work permit. Finished excavating elevated radioactive materials within the last three spots on the asphalt and the two smaller spots on the railroad tracks at the building 102 area. Released all areas of elevated radioactive material. Leveled the load within the gondola and secured the super load wrapper with the ties provided. The asphalt subcontractor was on site today to measure the areas for patching. They were scheduled to patch the pavement on Monday. Began filling some of the deeper excavations with crushed stone and compacted with excavator and walk behind tamper from Hertz.

**PROBLEMS/OBSERVATIONS/CONFLICTS:** N/A

**HEALTH & SAFETY LOG:**

Plan of the day meeting held prior to work starting.

**Daily Site Walkdown**

Area/Item Inspected	Corrective Action Required?		Inspection by/Notes
	YES*	NO	
			No inspections today

\*Problems Encountered/Corrective Actions Taken (if answered YES above);



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Completion Report

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Niacet Corporation Building 102 Remediation  
Project Number: 70017.11170.0004  
Daily Quality Control Report

Date: 12/08/2012 Day: Saturday Compiled Ron Voorheis  
By: X

**OBSERVATIONS**

AM Weather Temp (°F) 34	Overcast skies, intermittent rain
PM Weather Temp (°F) 45	Steady light rain, no wind.

**PERSONNEL**

Name	Company	Position	Hours		
			From	To	Approx. Total (minus lunch)
Ron Voorheis	LSRS	Project Manager	0700	1500	8
Dave Richards	LSRS	Site Supervisor	0700	1500	8
Jim Hull	GRD	Lead Technician			
Jason Brydges	LATA	Program Manager	0900	1300	4
<b>Total Daily Man Hours Worked</b>					20

**Visitors On-Site:**

Name	Company	Hours	
		From	To
None			

**MATERIALS/EQUIPMENT DELIVERED TO SITE:**

Company	Material/Equipment	Quantity	Disposition/Notes
Hertz Equipment			
Hertz Equipment			



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**WORK DESCRIPTION:** Prepare the excavated areas for asphalt patching.

**GENERAL NOTES:** Signed in at maintenance and received the excavation/hot work permit.  
Loaded and backfilled stone to prepare and compact the areas for patching.

**PROBLEMS/OBSERVATIONS/CONFLICTS:** work day was shortened slightly due to inclement weather.

**HEALTH & SAFETY LOG:**

Plan of the day meeting held prior to work starting.

**Daily Site Walkdown**

Area/Item Inspected	Corrective Action Required?		Inspection by/Notes
	YES*	NO	
			No inspections today

\*Problems Encountered/Corrective Actions Taken (if answered YES above):



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Completion Report

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Niacet Corporation Building 102 Remediation  
Project Number: 70017.11170.0004  
Daily Quality Control Report

Date: 12/10/2012 Day: Monday Compiled Ron Voorheis  
By: X

**OBSERVATIONS**

AM Weather Temp (°F) 33	Rain ending around 0700
PM Weather Temp (°F) 52	Mostly cloudy & cool

**PERSONNEL**

Name	Company	Position	Hours		
			From	To	Approx. Total (minus lunch)
Ron Voorheis	LSRS	Project Manager	0700	2100	14
Dave Richards	LSRS	Site Supervisor	0700	2100	14
Jim Hull	GRD	Lead Technician			
Jason Brydges	LATA	Program Manager	0700	1300	6
<b>Total Daily Man Hours Worked</b>					34

**Visitors On-Site:**

Name	Company	Hours	
		From	To
Asphalt subcontractor		0745	1300

**MATERIALS/EQUIPMENT DELIVERED TO SITE:**

Company	Material/Equipment	Quantity	Disposition/Notes
Hertz Equipment			
Hertz Equipment			



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**WORK DESCRIPTION:** finishing touches on backfilled areas and place asphalt patching.

**GENERAL NOTES:** Signed in at maintenance and received the excavation/hot work permit. Prepared sections to place the asphalt pavement. We completed the patching of the excavation sites by 1300 hours. Dave and Ron demobilized to Columbus. Equipment was scheduled to be demobilized by Hertz later in the week.

**PROBLEMS/OBSERVATIONS/CONFLICTS:** N/A

**HEALTH & SAFETY LOG:**

Plan of the day meeting held prior to work starting.

**Daily Site Walkdown**

Area/Item Inspected	Corrective Action Required?		Inspection by/Notes
	YES*	NO	
			No inspections today

\*Problems Encountered/Corrective Actions Taken (if answered YES above):



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Completion Report

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Niacet Corporation Building 102 Remediation  
Project Number: 70017.11170.0004  
Daily Quality Control Report

Date: 12/12/2012 Day: Wednesday Compiled Jason Brydges  
By: X

**OBSERVATIONS**

AM Weather Temp (°F) 27	Cold and partly cloudy. No precipitation.
PM Weather Temp (°F) 40	Partly cloudy patches of sun.

**PERSONNEL**

Name	Company	Position	Hours		
			From	To	Approx. Total (minus lunch)
Ron Voorheis	LSRS	Project Manager			
Dave Richards	LSRS	Site Supervisor			
Jim Hull	GRD	Lead Technician			
Jason Brydges	LATA	Program Manager	0900	1300	4
<b>Total Daily Man Hours Worked</b>				4	

**Visitors On-Site:**

Name	Company	Hours	
		From	To
Asphalt subcontractor		0900	1100

**MATERIALS/EQUIPMENT DELIVERED TO SITE:**

Company	Material/Equipment	Quantity	Disposition/Notes



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**WORK DESCRIPTION:** Demobilize heavy equipment, top coat asphalt areas and miscellaneous saw cuts. Initiate waste shipping papers with Niacet assistance.

**GENERAL NOTES:** Signed in at maintenance and received work permit to touch up asphalt areas. Two man pavement crew used top coat and asphalt filler to restore saw cuts and finished asphalt edges. Finished within a couple of hours and secured the area with traffic cones. No more equipment remained on site. Only material left on site were unused crushed stone and two gondola cars. Scheduled final walkover for tomorrow (Thursday) in addition to rail car placarding, labeling, and survey.

**PROBLEMS/OBSERVATIONS/CONFLICTS:** N/A

**HEALTH & SAFETY LOG:**

Plan of the day meeting held prior to work starting.

**Daily Site Walkdown**

Area/Item Inspected	Corrective Action Required?		Inspection by/Notes
	YES*	NO	
			No inspections today

\*Problems Encountered/Corrective Actions Taken (if answered YES above):



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Niacet Corporation Building 102 Remediation  
Project Number: 70017.11170.0004  
Daily Quality Control Report

Date: 12/13/2012 Day: Thursday Compiled Jason Brydges  
By: X

**OBSERVATIONS**

AM Weather Temp (°F) 25	Cold and partly cloudy. No precipitation.
PM Weather Temp (°F) 43	Partly sunny and windy.

**PERSONNEL**

Name	Company	Position	Hours		
			From	To	Approx. Total (minus lunch)
Ron Voorheis	LSRS	Project Manager			
Dave Richards	LSRS	Site Supervisor			
Jim Hull	GRD	Lead Technician	1400	1600	2
Jason Brydges	LATA	Program Manager	1300	1600	3
<b>Total Daily Man Hours Worked</b>					5

**Visitors On-Site:**

Name	Company	Hours	
		From	To

**MATERIALS/EQUIPMENT DELIVERED TO SITE:**

Company	Material/Equipment	Quantity	Disposition/Notes



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**WORK DESCRIPTION:** Complete final survey of excavated/backfilled areas. Release filled gondola car for shipment

**GENERAL NOTES:** Jason signed in at front desk to continue with shipping paperwork including manifesting, placarding, and labeling. Jim signed in at maintenance and obtained work permit for final walkover and gondola car release. Surveyed rail car with microR meter and smeared car with wipes and scintillation probe per 49CFR. Placarded rail car and labeled rail car. Completed shipping manifest and associated paperwork and sent to Niacet and MHF to schedule shipping.

**PROBLEMS/OBSERVATIONS/CONFLICTS:** N/A

**HEALTH & SAFETY LOG:**

Plan of the day meeting held prior to work starting.

**Daily Site Walkdown**

Area/Item Inspected	Corrective Action Required?		Inspection by/Notes
	YES*	NO	
Building 102 area		X	Jim Hull, GRD and Jason Brydges, LATA - completed final site walkdown upon job completion.

\*Problems Encountered/Corrective Actions Taken (if answered YES above);

<b>NIA</b>	<b>Title</b> Completion Report	<b>Document No.:</b> NIA-PLA-WP-006	<b>Revision No.:</b> 0
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## **Appendix E**

### **Instrument Daily Performance Check Log**



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**Title**

Document No.: NJA-PLA-WP-006

**Revision No.:**

### Daily Performance Check Record

\*Note: x 50 Bar #2 19-13 µR. x 250 Bar #1 144-96 µR Contact 1680-1120

\*Note: Bar #1 (44-38) 0.064 - 0.096 m/R/ hr. Bar #2 (44-38) 1.8 - 1.2 m/R/ hr

Performer's Printed Name(s) / Init: James Hull JH

Reviewed by / Date:

Reviewed by / Date: \_\_\_\_\_



## Title

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## **Daily Performance Check Record**

\*Note: x 50 Bar #2 19-13 µR. x 250 Bar #1 144-96 µR Contact 1680-1120

\*Note: Bar #1 (44-38) 0.064 - 0.096 m/R/hr. Bar #2 (44-38) 1.8 - 1.2 m/R/hr

Performer's Printed Name(s) / Init: James Halligh

Reviewed by / Date: \_\_\_\_\_



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## **Appendix F**

### **Field Radiation and Contamination Surveys**



NIADET 2012 RAD  
TECH - JAMES HULL  
RSO - JASON BRIDGES

Survey Log

12/4/12 - 12/14/12

JOBSITE - Nialet 47th St  
Niagara Falls NY.  
East of Bldg # 102.

Survey #	Date	Technician Name	Survey Details	Area	Type of Survey
Nialet Rad 2012-0001	12.4.12	James Hull	Initial Gamma Walkover of workarea Black top undisturbed	East of bldg 102	Gamma Walkover
Nialet Rad 2012-0002	12.4.12	"	Incoming Excavator	STAGING AREA	Incoming Equip - Excavator
Nialet Rad 2012-0003	12.4.12	"	Incoming Concrete Saw	"	Incoming Equip - Concrete Saw
Nialet Rad 2012-0004	12.4.12	"	Incoming Gondola Train Car	TRACK EAST OF BLDG 102	Incoming Equip - Train(Gondola)
Nialet Rad 2012-0005	12.5.12	"	Walkover of Excavation encompassing HSB2 and HSB3 Blacktop removed.	WORK AREA East of Bldg 102	Gamma Walkover - Excavation
Nialet Rad 2012-0006	12.5.12	"	OUTGOING - EXCAVATOR	East of Bldg 102	OUTGOING EQUIP - EXCAVATOR
Nialet Rad 2012-0007	12.6.12	"	INCOMING EXCAVATOR	STAGING AREA	INCOMING EQUIP - EXCAVATOR
Nialet Rad 2012-0008	12.6.12	"	INCOMING EXCAVATOR	"	INCOMING EQUIP - EXCAVATOR
Nialet Rad 2012-0009	12.6.12	"	OUTGOING CONCRETE SAW	WORK AREA East Bldg 102	OUTGOING EQUIP CONCRETE - SAW
Nialet Rad 2012-0010	12.6.12	"	SUBSURFACE GAMMA HS-7	"	Gamma Walkover
Nialet Rad 2012-0011	12.6.12	"	HSB-1	"	Gamma Walkover
Nialet Rad 2012-0012	12.6.12	"	HS-6	"	Gamma Walkover
Nialet Rad 2012-0013	12.7.12	"	HS-4	"	Gamma Walkover
Nialet Rad 2012-0014	12.7.12	"	HS-5	"	Gamma Walkover
Nialet Rad 2012-0015	12.7.12	"	OUT GOING EXCAVATOR	"	OUT GOING EQUIP EXCAVATOR
Nialet Rad 2012-0016	12.7.12	"	OUT GOING EXCAVATOR	"	OUT GOING EQUIP EXCAVATOR
Nialet Rad 2012-0017	12.13.12	"	OUTGOING TRAIN GONDOLA	"	OUT GOING EQUIP TRAIN GONDOLA
Nialet Rad 2012-0018	12.13.12	"	WORK AREA RELEASE SURVEY	"	WORK AREA RELEASE SURVEY
Nialet Rad 2012-0019	12.18.12	"	Low Vol Air filter results	GRD Inc	Air monitor results





## RADIOLOGICAL SURVEY REPORT

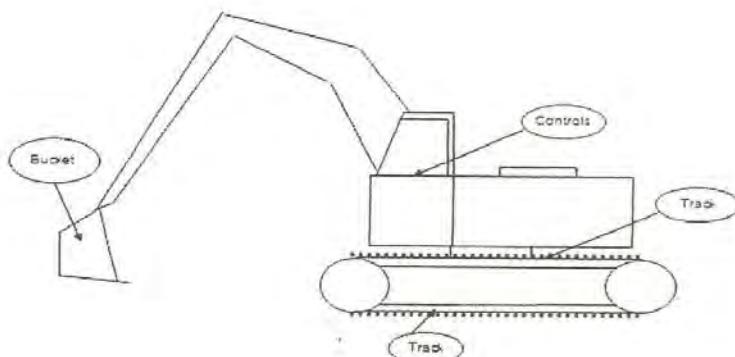
Page 1 of 1

PROJECT: <u>Niacet Area 2</u>	JOB DESCRIPTION AND COMMENTS		
PROJECT NO: _____	<input type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input checked="" type="checkbox"/> NON-ROUTINE (Specify Below)		
AREA: <u>Staging area</u>	<u>Incoming survey of John Deere 225D-LC</u>		
SURVEY #: <u>0002-Niacet-12</u>	<u>#246-16 - 0017 Hertz Equipment/Jr 3 Bucket/</u>		
RWP #: <u>044 120312 Niacet Rwp</u>	<u>Claw</u>		
DATE: <u>12-4-12 Tues</u>			
TIME: <u>0800 HRS</u>			

Performed by RCT: Joe H. Hell James Hall Performed by RCT: N/A  
Performed by RCT: N/A Performed by RCT: N/A  
Print Name Signature Print Name Signature

Reviewed by RCS: X Print Name Signature Date

All areas noted below surveyed using a Ludlum model 12 serial #131349 w/modell 44-9 Frister # RM 716106 cal Due 3-19-13 w/a background reading of 40 dpm



All reading at the four above noted location were < 40 dpm excavator cleaned for use on site

RADIOLOGICAL SURVEY REPORT  
INCOMING/OUTGOING EQUIP. SURVEY

Page 1 of 1

PROJECT: <u>Niacet 2012 Rad</u>	JOB DESCRIPTION AND COMMENTS		
PROJECT NO: <u>Niacet 2012 Rad</u>	<input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)		
AREA: <u>East BLDG 102</u>	<u>Incoming Survey of Concrete saw</u>		
<del>SHH</del> <u>Staging Area</u>	<u>used model 12 described below</u>		
RWP #: <u>120312 Niacet Rad</u>			
DATE: <u>12-4-12</u>			
TIME: <u>0815</u>			
Survey # Niacet Rad B012-0003			

Performed by RCT: James H. Hull Performed by RCT: N/A  
Performed by RCT: N/A Print Name Signature Performed by RCT: N/A  
Print Name Signature

Reviewed by RCS: Jason Beyoges RSC Print Name Signature Date

METER USED - MODEL 12 #121349 W1644-9 Probe # RNT716106 CAL DUE 3-19-13 EFF- 14.13%
BKRDI 40 OPM
<u>Concrete saw</u> 3525 TARGET SUPER SAW # 107097
All accessible surfaces were scanned 100% with the above described model 12 all readings were < 40 OPM. The self propelled wet saw was cleared for use in the workzone East of Building 102.

RADIOLOGICAL SURVEY REPORT  
INCOMING/OUTGOING EQUIP. SURVEY

Page 1 of 1

PROJECT: <u>Niacet Rad</u>	JOB DESCRIPTION AND COMMENTS		
PROJECT NO: <u>Niacet Rad</u>	<input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)		
AREA: <u>East Bldg 102</u>	<u>Train Car (Gondola) incoming survey</u>		
SURVEY #: <u>Niacet Rad 2012-0004</u>	<u>performed on rail spur East of Bldg 102 on the Niacet property</u>		
RWP #: <u>120312 Niacet Rad</u>			
DATE: <u>12.4.12</u>			
TIME: <u>1100 HRS</u>			

Performed by RCT: James H. Hall Jr. H.Hall Performed by RCT: N/APerformed by RCT: N/A Performed by RCT: N/A  
Print Name Signature Print Name SignatureReviewed by RCS: Jason Boyges RSO  
Print Name Signature Date

METER USED - MODEL 12 #121349 W/44-9 Probe # RNT 7/16/106 CAL DUE 3.19.13 EFF- 14.13% BHRA - 400 PM	2221-183989 GX-2-12002 CAL DUE- 1.7.13
PRUETT Schafer Gondola Train Car # GACX 9585 was scanned with the above described model 12. The foot ports for personnel to enter/exit the open top Car contained pieces of a rock like material with a metallic silver surface which was scanned with the above described 2221 reading were 4900 - 8900 cpm with the model 12 readings from the cars surface all being <40 cpm interior and exterior. JH.	



## RADIOLOGICAL SURVEY REPORT

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PROJECT:	Niacet 2012 RAD	JOB DESCRIPTION AND COMMENTS
PROJECT NO:	Niacet 2012 RAD	<input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)
AREA:	East Bldg 102	Numerous highly elevated large pieces of Material
SURVEY #:	Niacet 2012 RAD 0005	(approx 20') were removed trading up to 056K
RWP #:	1A0312 Niacet Rad	CPM 530mR after the removal of this
DATE:	12.5.12	material the excavation bottom read from
TIME:	1300 HRS	8K-20 CPM OTHER THAN HOT SPOTS NOTED BELOW.

Performed by RCT: James H. Hall Jr. H. Hall

Performed by RCT: N/A

Performed by RCT: N/A

618-1147

Performed by RCT: N/A

N/A

Page 10

Reviewed by RCS: JASON BRAYBLES (RSO)

Print Name

---

**Signature**

Date \_\_\_\_\_

Drawing not to scale

---

---

2221-#183789  
W/GX-2 probe  
#1/2002  
CAL DUE 1/7/13

**RAIL BEDDING →**

**BLACKTOP**

1 MIN CT ON BLACKTOP  
POST EXCAVATION → X  
7,856 CPM  
ABOVE HOT SPOT  
IN FACE.

**HSB2**

10'  
↓  
20'

**RAIL BEDDING ←**

**BLACKTOP**

16'  
↓  
4'

**HSB3**

X ← POST EXC.  
130 KCPM  
@ 4' DEPTH LINES  
IN AREA AND  
SCOPE OF WORK  
PREVENT FURTHER  
EXCAVATION

**POST EXCAVATION**  
**FACE READS 50 KCPM**  
**@ THIS SPOT AT A**  
**DEPTH OF 3''**

**(X) AIR MONITOR**

See survey # M1007 2012 Rev 00 1 for specific location on site

**EXCAVATION PROFILE**

**LAYER 1** - blacktop 6-10", 5K-12 KCPM EXCEPT FOR NOTED HOTSPOTS

**LAYER 2** - MIXTURE OF GRANULAR SOIL, HISTORICAL DEBRIS AND UP TO FIST SIZED ROCK LIKE RADIODILOCALLY ELEVATED MATERIAL FROM 10"-24" DEPTH 12 K-250 K, CPM

**LAYER 3** - CONSISTENT W/LAYER 2, W/ ADDITION OF UPTO BASKETBALL SIZED ROCKLIKE PIECES OF HIGHLY ELEVATED MATERIAL 24"-48" DEPTH, PIECES RANGE FROM 400 K → 675 K CPM + 450-700 MR

**NORTH**



## RADIOLOGICAL SURVEY REPORT

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PROJECT: <u>Niaetraza</u>	JOB DESCRIPTION AND COMMENTS	
PROJECT NO: <u>Niaet 2012 Rad.</u>	<input type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input checked="" type="checkbox"/> NON-ROUTINE (Specify Below)	
AREA: <u>B1D6 #102</u>	<u>Outgoing Survey of John Deere 225D - LC</u>	
SURVEY #: <u>Niaet 2012 0006</u>	<u>#246-16-0001 Hertz Equip w/ 3 Bucket</u>	
RWP #: <u>NIA 120312 NIAET RAD</u>	<u>W-clad.</u>	
DATE: <u>12-5-12</u>		
TIME: <u>10:00 AM</u>		

Performed by RCT: James H. HallPerformed by RCT: N/APerformed by RCT: N/APerformed by RCT: N/A

Print Name

Signature

Print Name

Signature

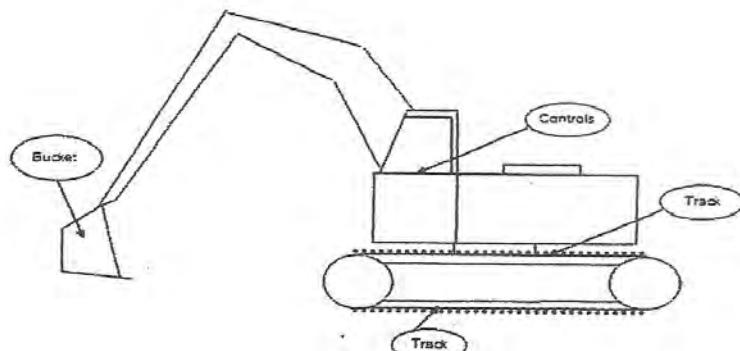
Reviewed by RCS:

Print Name

Signature

Date

All areas noted below surveyed using a Ludlum model 12. Serial #121349 w/model 44-9 Frisker #RN 716106 Cal Date 3/19/13 w/a background reading of 40 cpm's



All readings at the four noted locations were < 40 cpm's excavator was cleared for removal from site by Hertz equipment.

## RADIOLOGICAL SURVEY REPORT

Page 1 of 1

<b>PROJECT:</b>	<u>NiagEt 2012</u>	<b>JOB DESCRIPTION AND COMMENTS</b>
<b>PROJECT NO:</b>	<u>NiagEt 2012 Rad</u>	<input type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input checked="" type="checkbox"/> NON-ROUTINE (Specify Below)
<b>AREA:</b>	<u>Passing Area</u>	<u>Incident Survey of small orange Herz</u>
<b>SURVEY #:</b>	<u>NiagEt 2012 - 00001</u>	<u>Equip Rental KX057-4 Kubota ser#</u>
<b>RWP #:</b>	<u>NVA120312 NiagEt RAP</u>	<u>346040063</u>
<b>DATE:</b>	<u>12/6/12</u>	
<b>TIME:</b>	<u>1100 HRS</u>	

Performed by RCT: James H. Hall Jr. & His Band

Performed by RCT: N/A

Performed by RCT: N/A

Print Name \_\_\_\_\_

---

**Signature**

Performed by RCT: N/A

---

Print Name \_\_\_\_\_

### **Symptoms**

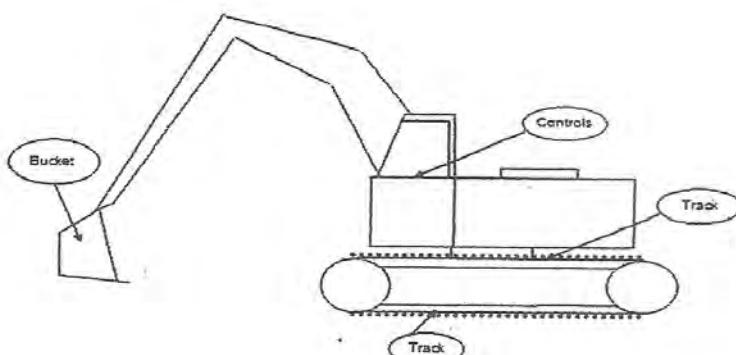
Reviewed by RCS-

Print Name \_\_\_\_\_

87

1

All areas noted below surveyed using a Ludlum model 12  
Serial # 121349 w/model # 44-9 fripper # RN 716106 cal One 3.19.13  
w/ background of 40 cpm.



All readings at the four  
above noted locations  
were <40 ppm. excavator was  
cleared for <sup>use on</sup> ~~removal from~~ site.



## Title

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## RADIOLOGICAL SURVEY REPORT

Page 1 of 1

<b>PROJECT:</b>	<u>Niauct 2012</u>	<b>JOB DESCRIPTION AND COMMENTS</b>
<b>PROJECT NO:</b>	<u>Niauct 2012 Rad</u>	<input type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input checked="" type="checkbox"/> NON-ROUTINE (Specify Below)
<b>AREA:</b>	<u>Staying area</u>	<u>Incoming Survey of Small Holden Deore</u>
<b>SURVEY #:</b>	<u>NIAUCT2012-0008</u>	<u>135 D Hertz serial # 346 050048</u>
<b>RWP #:</b>	<u>N/A 120312 Niauct Rad</u>	
<b>DATE:</b>	<u>12-4-12</u>	
<b>TIME:</b>	<u>1100 hrs</u>	

Performed by RCT: James Hall Jr. - Harrell

Performed by RCT: N/A

**Print Name**

**Signature:**

Performed by RCT: N/A

Performed by RCT: N/A

Print Name

**Signature**

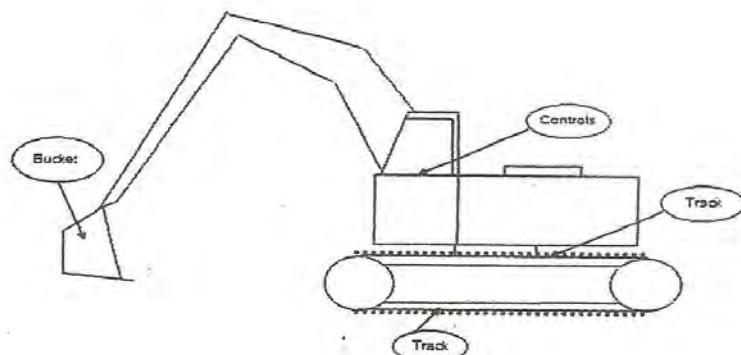
Reviewed by RCS-

Print Name

81

10

All area noted below surveyed using a model 12 Serial # 121349  
w/model 449 fricker <sup>8th</sup> serial # R.N. 716106 cal/Duo 3-19-12  
background reading of 40 cps



All readings at above 4 locations  
L40 open excavator cleared for  
use on site.

RADIOLOGICAL SURVEY REPORT  
INCOMING/OUTGOING EQUIP. SURVEY

Page 1 of 1

PROJECT: <u>Niacet 2012 Rad</u>	JOB DESCRIPTION AND COMMENTS		
PROJECT NO: <u>Niacet 2012 Rad</u>	<input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)		
AREA: <u>East Bldg 102</u>	<u>OUTGOING EQUIP. SURVEY CONCRETE SAW</u>		
SURVEY #: <u>Niacet 2012 Rad 0009</u>			
RWP #: <u>120312 Niacet Rad</u>			
DATE: <u>12-6-12</u>			
TIME: <u>1200 HRS</u>			

Performed by RCT: James H. Hall Jr. H. Hall Performed by RCT: N/APerformed by RCT: N/A Performed by RCT: N/A  
Print Name Signature Print Name SignatureReviewed by RCS: Jason Beyoges RSO \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_  
Print Name

METER USED - MODEL 12 #121349 W/44-9 Probe # RNT716106 CAL DUE 3.19.13 EFF- 14.13% 3KRB 40 GPM
All accessible Surfaces 100% scanned to the above meter All readings were nondetectable <40cpms. 352.5 Target Super Concrete Saw # 107097



## RADIOLOGICAL SURVEY REPORT

Page 1 of 1

PROJECT: <u>Niacet 2012 RAD</u>	JOB DESCRIPTION AND COMMENTS		
PROJECT NO: <u>Niacet 2012 RAD</u>	<input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)		
AREA: <u>East BLDG #102</u>	<u>RAD SURVEY OF HS 7 EAST OF BLDG #102</u>		
SURVEY #: <u>Niacet 2012 Rad 0010</u>	<u>Post Excavation</u>		
RWP #: <u>120312 Niacet Rad</u>			
DATE: <u>12.6.12</u>			
TIME: <u>0900</u>			

Performed by RCT: James H. Hall Jr. - H. Hall Performed by RCT: N/A  
 Performed by RCT: N/A Performed by RCT: N/A

Print Name Signature

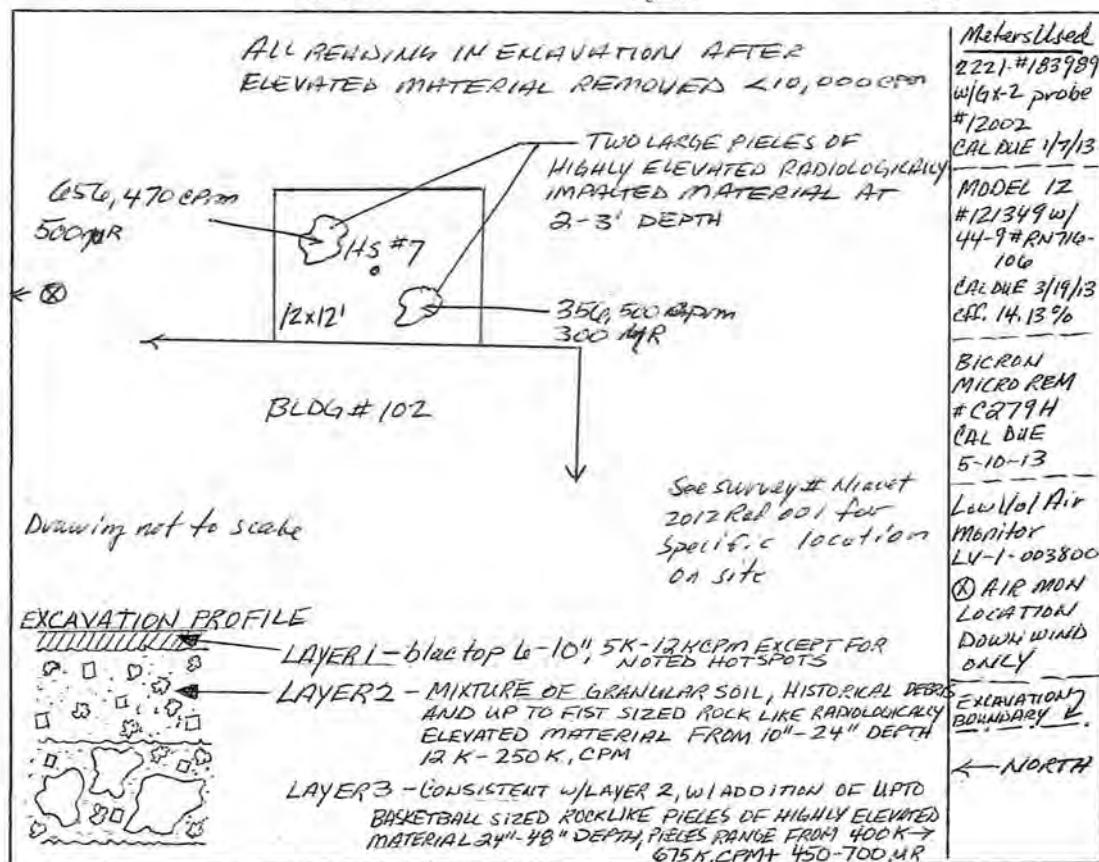
Print Name Signature

Reviewed by RCS: JASON BRYANT (RSO) Print Name Signature Date

Print Name

Signature

Date





## RADIOLOGICAL SURVEY REPORT

Page 1 of 1

PROJECT:	Niacet 2012 RAD	JOB DESCRIPTION AND COMMENTS
PROJECT NO:	Niacet 2012 RAD	<input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)
AREA:	East BLDG 102	<i>Bottom of Excavation Surrounding HSB1 Read 8-20k cpm at bottom after elevated material removed and prior to backfill</i>
SURVEY #:	Niacet2012Rad00011	
RWP #:	120312 Niacet Rad	
DATE:	12-6-12	
TIME:	1300 HRS	

Performed by RCT: James H. Hall Jr. - Hall

Performed by RCT: N/A

Performed by RCT:

**Print Name**

Signature

Performed by RCT: N/A

Print Name

Signature

Reviewed by RCS: JASON BRYDGES (RSO)

Signature

Date

See Niacet 2012 Rad 0001  
for specific location  
on site

NOT TO SCALE

## Metersized

Microscopic  
2221-#183989  
w/Gx-2 probe  
#12002  
2012-5-12/13

CAL ME 1/1/13  
MODEL 12  
#121349W/  
44-9#RN714-  
106  
PAID DUE 3/19/13

BICRON  
MICRO REM  
#C279H  
CAL DUE  
5-10-13

~~5-10-75~~  
Low Vol Air  
Monitor  
LV-1-003800  
D 118-MAN

~~THE~~ most  
LOCATION  
DOWNWIND  
only

EXCAVATION  
BOUNDARY

← NORTH

10 of 10

**Site Plan:**

- BLDG 102** is shown on the left.
- A concrete footer for steam line overhead is indicated near BLDG 102.
- An HSB 1 is marked near the footer.
- The boundary is marked with a dashed line.
- The distance between the boundary and BLDG 102 is labeled as 700' MR.
- The distance between the boundary and the concrete footer is labeled as 100' MR.
- The date 3/19/13 is noted.
- The code CFC 14.13% is noted.
- The location is identified as BICRON MICRO REM #C279H CAL DUE 5-10-13.
- The Low Vol Air Monitor LV-1-003800 is noted.
- The AIR MON LOCATION is marked as DOWN WIND ONLY.
- The EXCAVATION PROFILE shows three layers of soil.
- LAYER 1**: Blac top 6-10", 5K-12K CPM except for noted hotspots.
- LAYER 2**: Mixture of granular soil, historical debris and up to fist sized rock like radiologically elevated material from 10"-24" depth 12 K-250 K, CPM.
- LAYER 3**: Consistent w/Layer 2, w/addition of up to basketball sized rocklike pieces of highly elevated material 34"-48" depth, pieces range from 400 K-675 K, CPM+ 400-700.
- The diagram includes a compass arrow pointing North.



## RADIOLOGICAL SURVEY REPORT

Page 1 of 1

PROJECT: <u>Niacet 2012 RAD</u>	JOB DESCRIPTION AND COMMENTS	
PROJECT NO: <u>Niacet 2012 RAD</u>	<input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)	
AREA: <u>East BLDG 102</u>	<u>All Readings in excavation after the bulked material was removed were all &lt; 10,000 RPM.</u>	
SURVEY #: <u>Niacet 2012 Rad 00012</u>		
RWP #: <u>100312 Niacet Rad</u>		
DATE: <u>12.10.12</u>		
TIME: <u>1500 HRS</u>		

Performed by RCT: James H. Hall Jr. - H. Hall Performed by RCT: N/A  
Performed by RCT: N/A Performed by RCT: N/A

Reviewed by RCS: JASON BRYDGES (RSO)  
Print Name \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

<p>THE ELEVATED MATERIAL REMOVED FROM THIS SPOT WAS VISUALLY DIFFERENT THAN THE OTHER SPOTS.</p> <p>(X)</p> <p>SEE SURVEY # NIACET 2012 RAD 0001 FOR SPECIFIC LOCATION ON SITE.</p> <p>EXCAVATION PROFILE</p> <p>LAYER 1 - BULK TOP 6-10", 5K-12 K CPM EXCEPT FOR NOTED HOTSPOTS</p> <p>LAYER 2 - MIXTURE OF GRANULAR SOIL, HISTORICAL DEBRIS AND UP TO FIST SIZED ROCK LIKE RADIOLOGICALLY ELEVATED MATERIAL FROM 10"-24" DEPTH 12 K-250 K, CPM</p> <p>LAYER 3 - CONSISTENT W/LAYER 2, W/ADDITION OF UP TO BASKETBALL SIZED ROCKLIKE PIECES OF HIGHLY ELEVATED MATERIAL 24"-48" DEPTH, PIECES RANGE FROM 400 K- 675 K, CPM + 450-700</p> <p>METERS USED 2221-#183989 w/1gx2 probe #12002 CAL DUE 1/4/13</p> <p>MODEL 12 #121349 w/ 44-9#RN714- 106 CAL DUE 3/19/13 eff. 14.13%</p> <p>BICRON MICRO REM #C279H CAL DUE 5-10-13</p> <p>Low Vol Air Monitor LV-1-003800</p> <p>(X) AIR MON LOCATION DOWN WIND ONLY</p> <p>ELEVATION BOUNDARY</p> <p>NORTH</p>	
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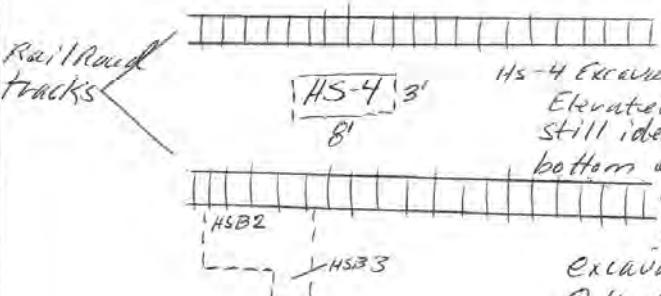
### RADIOLOGICAL SURVEY REPORT

Page 1 of 1

PROJECT: <u>Niacet 2012 RAD</u>	JOB DESCRIPTION AND COMMENTS		
PROJECT NO: <u>Niacet 2012 RAD</u>	<input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)		
AREA: <u>East BLDG 102</u>			
SURVEY #: <u>Niacet 2012 Rad 0013</u>			
RWP #: <u>100312 Niacet Rad</u>			
DATE: <u>12.7.12</u>			
TIME: <u>0800 HRS</u>			

Performed by RCT: James H. Hall Jr. H.Hall Performed by RCT: N/A  
 Performed by RCT: NA Performed by RCT: N/A

Reviewed by RCS: JASON BRYDGES (RSO)  
 Print Name \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

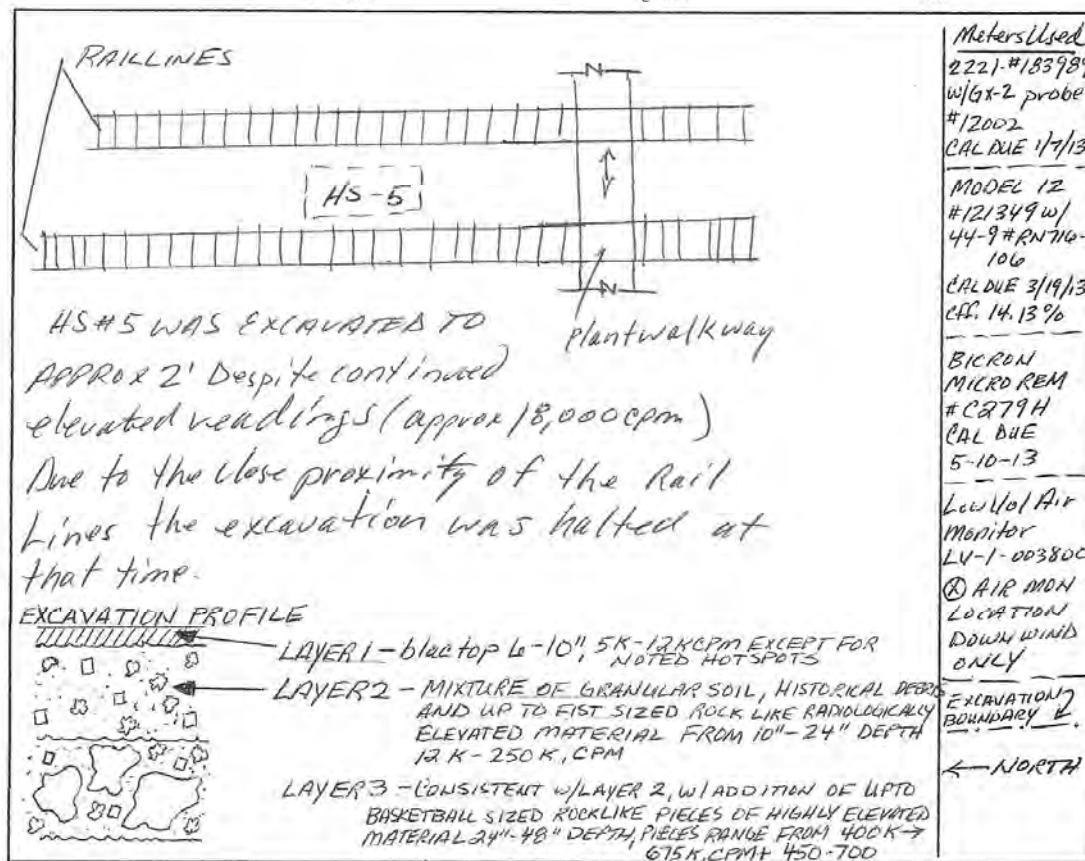
 <p>Rail/Road tracks</p> <p>HS-4 (3') HS-2 HS-3</p> <p>HS-4 Excavated to approx 2'. Elevated readings were still identified in the bottom of the excavation of 20,000 cpm. However the excavation was halted at that pt due to the close proximity of the rail lines.</p>	<p>Meters Used</p> <p>2221 #183989 w/ Gx-2 probe #12002 CAL DUE 1/7/13</p> <p>MODEL 12 #121349 w/ 44-9 #RN 74- 106 CAL DUE 3/19/13 eff. 14.13 %</p> <p>BICRON MICRO REM #C279H CAL DUE 5-10-13</p> <p>Low Vol Air Monitor LV-1-003800</p> <p>⑧ AIR MON LOCATION DOWN WIND ONLY</p> <p>EXCAVATION PROFILE</p> <p>LAYER 1 - blc top 6-10", 5K-17 KCPM EXCEPT FOR NOTED HOT SPOTS</p> <p>LAYER 2 - MIXTURE OF GRANULAR SOIL, HISTORICAL DEBRIS AND UP TO FIST SIZED ROCK LIKE RADIOLOGICALLY ELEVATED MATERIAL FROM 10"-24" DEPTH 12 K-250 K, CPM</p> <p>LAYER 3 - CONSISTENT w/LAYER 2, w/ ADDITION OF UP TO BASKETBALL SIZED ROCKLIKE PIECES OF HIGHLY ELEVATED MATERIAL 24"-48" DEPTH, PIECES RANGE FROM 400 K → 675 K, CPM + 450-700</p> <p>EXCAVATION BOUNDARY</p> <p>NORTH</p>
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## RADIOLOGICAL SURVEY REPORT

Page 1 of 1

PROJECT: <u>Niacet 2012 RAD</u>	JOB DESCRIPTION AND COMMENTS		
PROJECT NO: <u>Niacet 2012 RAD</u>	<input type="checkbox"/> ROUTINE <input checked="" type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)		
AREA: <u>East BLDG 102</u>			
SURVEY #: <u>Niacet 2012 Rad 0014</u>			
RWP #: <u>100312 Niacet Rad</u>			
DATE: <u>12.7.12</u>			
TIME: <u>1000 HRS</u>			

Performed by RCT: James H. Hall Jr. H. Hall Performed by RCT: N/APerformed by RCT: N/A Performed by RCT: N/AReviewed by RCS: JASON BRYDGES (RSO) Print Name Signature Date



## RADIOLOGICAL SURVEY REPORT

Page 1 of

<b>PROJECT:</b>	Niacet 2012 Rad	<b>JOB DESCRIPTION AND COMMENTS</b>
<b>PROJECT NO:</b>	Niacet 2012 Rad	<input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input checked="" type="checkbox"/> NON-ROUTINE (Specify Below)
<b>AREA:</b>	East of Bldg 102	Outgoing survey of 10th Street 135
<b>SURVEY #:</b>	Niacet Rad 2012-0015	A Hertz # 246050048
<b>RWP #:</b>	NIA 12031 Niacet Rad	
<b>DATE:</b>	12-07-12	
<b>TIME:</b>	1400	

Performed by RCT: James H. Hall

Performed by RCT: N/A

Performed by RCT: N

Print Name

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**Signature**

Performed by RCT: N/A

---

**Print Name**

55

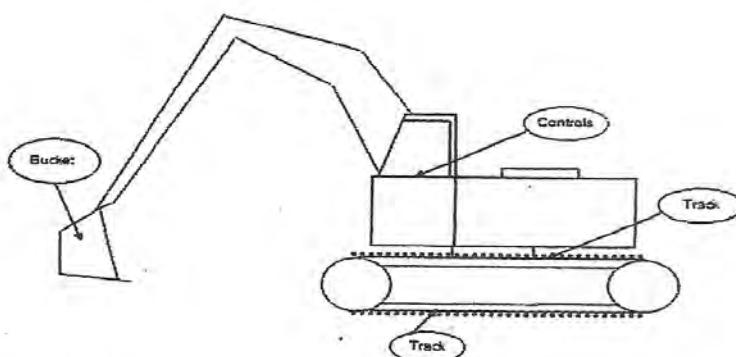
Reviewed by RCS: Jason Brydges RSC

Print Name

**Signature**

Date

All Areas noted below surveyed using a Ludlum model 12  
Serial #121349 w/ model 44-9 Frisker # RN#16106 CAL DATE  
3.19.13 with background reading of 40 cpm



All readings < 40cpm excavator cleaned for removal from site.



## RADIOLOGICAL SURVEY REPORT

Page 1 of

PROJECT: <u>Niclet 2012-Rad</u>	JOB DESCRIPTION AND COMMENTS	
PROJECT NO: <u>Niclet 2012-Rad</u>	<input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input checked="" type="checkbox"/> NON-ROUTINE (Specify Below)	
AREA: <u>East of Bldg 102</u>	<i>Perf going sludge off Hertz Equip</i>	
SURVEY #: <u>Niclet Rad 2012-0016</u>	<i>Kubota excavator # KX057-4</i>	
RWP #: <u>N/A 10.32 Niclet Rad</u>	<i>Ser # 246040013</i>	
DATE: <u>12-07-12</u>		
TIME: <u>1700</u>		

Performed by RCT: James H. Hall Jr. H. Hall Performed by RCT: N/A  
Performed by RCT: N/A Performed by RCT: N/A

Print Name Signature

Print Name Signature

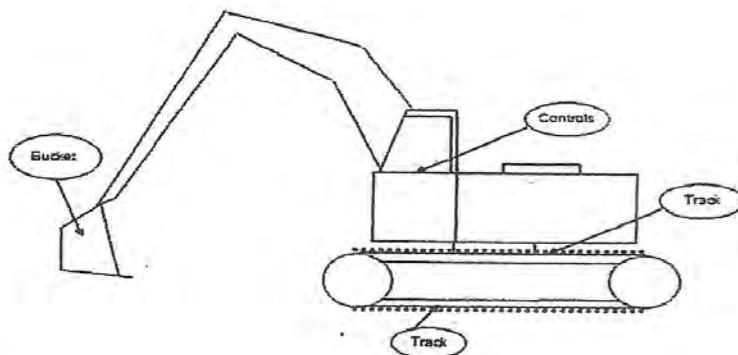
Reviewed by RCS: Jason Bridges (RSO) Signature Date

Print Name

Signature

Date

All Areas noted below surveyed using a model 12 serial # 121349 w/model 44-9 fr. sker # RN 716106 calc due 3/19/13 background reading of 40 cpm



All readings < 40 cpm excavator cleared for removal from site.



Title  
Completion Report

Document No.:  
NIA-PLA-WP-006

Revision No.:  
0



RADIOLOGICAL SURVEY REPORT  
INCOMING/OUTGOING EQUIP. SURVEY

Page 1 of 1

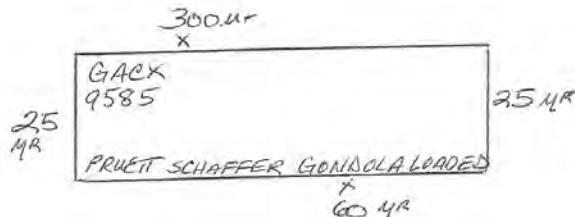
PROJECT: <u>Niacet 2012 Rad</u>	JOB DESCRIPTION AND COMMENTS	
PROJECT NO: <u>Niacet 2012 Rad</u>	<input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)	
AREA: <u>East BLDG 102</u>	<u>OUT GOING SURVEY OF LOADED</u>	
SURVEY #: <u>Niacet Rad 2012-0017</u>	<u>TRAIN GONDOLA</u>	
RWP #: <u>120312 Niacet Rad</u>		
DATE: <u>12/13/12</u>		
TIME: <u>1500</u>		

Performed by RCT: James H. Hall J. Hall Performed by RCT: N/A

Performed by RCT: N/A Performed by RCT: N/A  
Print Name Signature Print Name Signature

Reviewed by RCS: Jason Bridges RSC Signature Date  
Print Name

METER USED - MODEL 12 #121349  
w/44-9 Probe # RNT716106  
CAL DUE 3-19-13  
EFF- 14.13 %  
— BICRON - MICROPREM  
# C279H  
CAL DUE ~~10/21/13~~ 5-10-13.



3 surveys taken @ locations  
indicated above all counts  
between 40 and 80 cpm  
Background was 40 cpm.



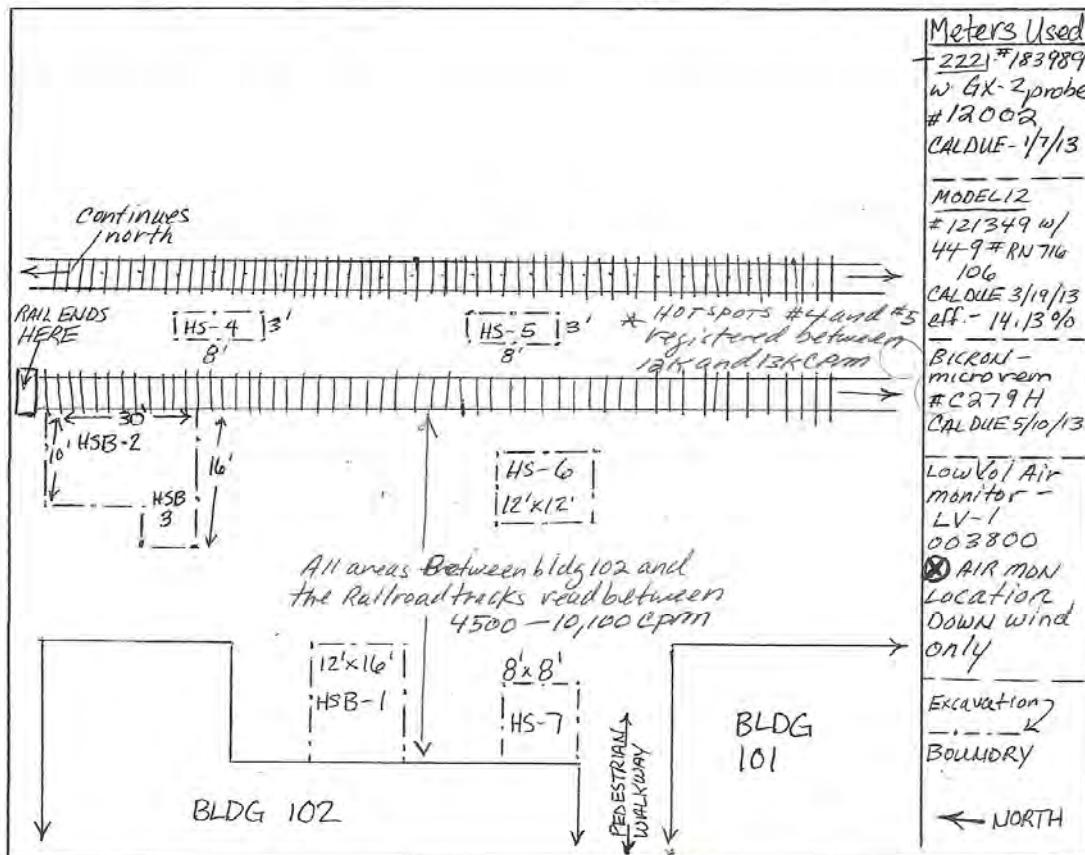
## RADIOLOGICAL SURVEY REPORT

Page 1 of 1

PROJECT: <u>Niacet 2012 RAD</u>	JOB DESCRIPTION AND COMMENTS	
PROJECT NO: <u>Niacet 2012 RAD</u>	<input checked="" type="checkbox"/> ROUTINE <input type="checkbox"/> FOLLOW-UP <input type="checkbox"/> NON-ROUTINE (Specify Below)	
AREA: <u>East of Bldg 102</u>	<u>WORK AREA RELEASE SURVEY</u>	
SURVEY #: <u>Niacet Rad 2012 - 0018</u>		
RWP #: <u>100312 Niacet Rad</u>		
DATE: <u>12/13/12</u>		
TIME: <u>1400</u>		

Performed by RCT: James H. Hull Jan H. Hoff Performed by RCT: N/A  
Performed by RCT: N/A Performed by RCT: N/A

Reviewed by RCS: Jason Bridges Print Name Signature Date



<b>LATA</b>	<b>Title</b> Completion Report	<b>Document No.:</b> NIA-PLA-WP-006	<b>Revision No.:</b> 0
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## **Appendix G**

### **Waste Profile, Disposal Certificates, and Manifest**



Where Complex Challenges Meet Smart Solutions  
Transportation ▶ Packaging ▶ Technical Services

PRODUCT  
INFORMATION



● Gondolas

**Specifications**

- 110 ton net weight carrying capacity
- 56' 11" overall length
- 2,743 cubic foot capacity
- Inside length 52' 6"
- Inside height 5' 6"
- Inside width 9' 6"
- Top of rail to top of car is 9' 2"

**Equipment Features**

- MHFX Rail Reporting Marks
- MHF Services privately owned equipment ensures availability and uniformity
- Cars are provided in clean condition, empty and ready for loading
- Can be fitted with custom top covers or hard lids

**Equipment Advantages**

- Increased weight carrying capacity allows for greater amounts of material to be transported than typical railroad supplied gondolas
- Gondola can transport any bulk solid material such as construction debris, scrap metal, soils, concrete blocks, pipe, machinery, cargo, steel products or any finished good that can be placed into it and secured properly by our experts

<b>LATA</b>	<b>Title</b> Completion Report	<b>Document No.:</b> NIA-PLA-WP-006	<b>Revision No.:</b> 0
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## CERTIFICATE OF DISPOSAL

**January 12,2013**

NIACET CORPORATION  
400 47TH STREET  
NIAGARA FALL , NY 14304

This is to certify that waste as defined on Waste Manifest number **121312-01**/ was received by U.S. Ecology, Inc., on **01/09/2013**. The waste(s) were subsequently treated, if required by 40 CFR Part 268 and U.S. Ecology's permits and disposed of by **01/09/2013** in accordance with permits and laws regulating this facility.

**Reference Number:** 13010900272-121312-01-1-1

**Material:** 1 DUMP TRUCK

**Process:** Direct Landfill

**Management Code:**

**Facility:** U.S. ECOLOGY IDAHO, INC.  
20400 LEMLEY ROAD  
GRAND VIEW, ID 83624  
EPA ID: IDD073114654

**Waste Type:** NON HAZARDOUS WASTE

**Customer:** LOS ALAMOS TECHNICAL ASSOCIATE, INC (LATA)

**Printed Name:** DONNA PULLEN

**Signature:** Donna Pullen

**Title:** RECEIVING SUPERVISOR

<b>LATA</b>	<b>Title</b> Completion Report	<b>Document No.:</b> NIA-PLA-WP-006	<b>Revision No.:</b> 0
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## CERTIFICATE OF DISPOSAL

**January 12,2013**

NIACET CORPORATION  
400 47TH STREET  
NIAGARA FALL , NY 14304

This is to certify that waste as defined on Waste Manifest number **121312-01**/ was received by U.S. Ecology, Inc., on **01/09/2013**. The waste(s) were subsequently treated, if required by 40 CFR Part 268 and U.S. Ecology's permits and disposed of by **01/09/2013** in accordance with permits and laws regulating this facility.

**Reference Number:** 13010900273-121312-01-1-1

**Material:** 1 DUMP TRUCK

**Process:** Direct Landfill

**Management Code:**

**Facility:** U.S. ECOLOGY IDAHO, INC.  
20400 LEMLEY ROAD  
GRAND VIEW, ID 83624  
EPA ID: IDD073114654

**Waste Type:** NON HAZARDOUS WASTE

**Customer:** LOS ALAMOS TECHNICAL ASSOCIATE, INC (LATA)

**Printed Name:** DONNA PULLEN

**Signature:** Donna Pullen

**Title:** RECEIVING SUPERVISOR



**Title**  
Completion Report

**Document No.:**  
NIA-PLA-WP-006

**Revision No.:**  
0

<b>USEcology</b>		<input type="checkbox"/> US Ecology Nevada (Beatty) <input type="checkbox"/> US Ecology Texas (Rob.own) Fax (775) 553-2125    Fax (361) 387-0794 <input type="checkbox"/> US Ecology Idaho (Grand View) Fax (208) 834-2919	Profile #: <u>29233</u>
<b>A. CUSTOMER INFORMATION</b> *Waste as shipped will be : <input type="checkbox"/> Industrial <input type="checkbox"/> NON - Industrial *(Texas customers only)			
Generator:	Niacet Corporation		
Facility Address :	400 47th Street <i>41812</i>		
Mailing Address			
City/State/Zip:	Niagara Falls/NY/14304		
Technical Contact:	Jason Brydges		
Phone:	716-830-8636	Fax:	
NAICS#	325199	<input type="checkbox"/> CESQG <input type="checkbox"/> SQG <input type="checkbox"/> LQG	EPA ID#: NYD088419890    State ID# NA
<b>B. SHIPPING INFORMATION</b>			
1. US DOT Shipping Name	Radioactive Material, low specific activity (LSA-I) non fissile or fissile-excepted		
2. UN/NA #	UN2912	4. Packaging Group	s.RQ
5. Container Type:	<input checked="" type="checkbox"/> Bulk <input type="checkbox"/> Totes <input type="checkbox"/> Pallet	Size	100 ton
6.	<input type="checkbox"/> Boxes <input type="checkbox"/> Bags <input type="checkbox"/> Drums <input checked="" type="checkbox"/> Other	Quantity	2
7. Frequency:	<input type="checkbox"/> Year <input type="checkbox"/> QTR <input type="checkbox"/> Month	<input checked="" type="checkbox"/> 1 Time <input type="checkbox"/> Other	
<b>C. GENERAL MATERIAL &amp; REGULATORY INFORMATION</b>			
1. Common name for this waste	Radioactive Material, low specific activity (LSA-I)		
2. Process generating the material	Remediation derived waste from excavating subsurface materials		
3. Describe physical appearance of waste	solids consisting of soil and rock		
4. Describe odor of waste:	<input checked="" type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Strong	Describe _____	
5. Knowledge is from:	<input checked="" type="checkbox"/> Lab Analysis <input type="checkbox"/> MSDS <input checked="" type="checkbox"/> Process/Generator knowledge	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the waste restricted under EPA Land Disposal Restrictions (40 CFR 268) if <u>yes</u> , please complete LDR form
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the material <500 PPMW VOC as generated?		
<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is the waste, or generating facility, subject to regulation under 40 CFR Part 61 Subpart FF (Benzene Rule) of NESHAPS? If <u>yes</u> , complete form "attachment 4". (Note: Waste generated from chemical manufacturing, coke-by-product recovery plants, petroleum refineries or treaters of such waste are subject to these requirements.)		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	State waste codes		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	CERCLA Regulated (Superfund) Waste		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	EPA Haz. Waste (list codes)		
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Contains UHCs/Constituents of Concern: List in section D <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Has the waste been treated after the initial point of generation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Subpart XX (40 CFR 63.1080) Controls Required? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No    Exempt Waste: If yes, list ref. 40 CFR Source Code G    Form Code W    Mgt. Method H			
<b>D. MATERIAL COMPOSITION (Physical/Chemical)</b> (Range Total > or = 100%) Values are <input type="checkbox"/> TCLP <input type="checkbox"/> TOTALS (include additional sheets as necessary) typical value unit range			
soil	50	%	40-60
rock	50	%	40-60
asphalt	5	%	
Total PCB	151	ug/kg	
percent moisture	6.2	%	
Ra-226	87.2	pCi/g	
Th-230	56.9	pCi/g	
U-238	11.2	pCi/g	
(see attached lab data for other isotopes)			
<b>E. Does the waste exhibit or contain the following:</b>			
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Oxidizer <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No React. Sulfides ppm <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Explosive <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No React. Cyanides ppm <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Organic Peroxide <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Water/Air (Pyrophoric) React. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Shock Sensitive <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Thermally Unstable <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Tires <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No TSCA Regulated PCB Waste <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Pyrophoric <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Regulated Medical/Infectious Waste <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Radioactive** <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Compressed Gasses <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Exempt RAD**    **Additional Radiological info is provided in USEI's WAC Addendum <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Halogenated Organic Compounds? (per 40 CFR 268, Appendix III)			
<b>F. PHYSICAL CHARACTERISTICS</b> pH Range _____ to _____ 1 Flash Poi NA F (if <140°F)    2.Typical pH: _____ pH Range: <input type="checkbox"/> ≤ 2 <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Possibility of incidental liquids from transportation? <input checked="" type="checkbox"/> >2, <12.50 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Does waste pass the EPA specified paint filter test? <input type="checkbox"/> ≥ 12.5 <i>(Pass is a solid)</i>			
<b>G. GENERATOR'S CERTIFICATION:</b> <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No I certify this material may be disposed of without further treatment. Certification Statement I certify under penalty of law that I am familiar with this waste stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, and that all known or suspected hazards have been disclosed. Furthermore, I certify that this form was completed in accordance with the instructions provided			
Signature: <i>John D'Angelo</i>		Print Name: <u>SALVATORE D'ANGELO</u>	
Facility use only		Title: <u>MANAGER QA/QC</u>	Date: <u>9-14-02</u>
First review	Second review	Final review:	Date Denied:
Date approved:			



## WASTE ACCEPTANCE CRITERIA ADDENDUM

Generator Niacet Corporation Date 9/11/2012  
Contact Jason Brydges Phone 716-830-8636  
Common Name of Material Radioactive Material, low specific activity (LSA-1)  
Material Description Solids consisting of soil and rock

Waste Classification

- Which of the USEI WAC Tables apply to this material?

- Table C.1 - Unimportant Quantities of Source Material Uniformly Dispersed in Soil or other Media
- Table C.2 - NORM other than Uranium and Thorium Uniformly Dispersed in Soil or Other Media
- Table C.3 - Particle Accelerator Produced Radioactive Material
- Table C.4a - NRC Exempted Products, Devices, or Items
- Table C.4b - Materials Specifically Exempted by the NRC or NRC Agreement State

- Does the Material Require Placarding?

Yes  No If yes, What type? class 7

- List the major radioisotopes in the waste stream and their average specific or total activity.  
(For Natural Decay Series, list only the major progenitors)

Radioisotope	Ra226	Ra228	U238	Th232	Th230		
Activity (Curies)							
SA (pCi/g)	87.2	12.3	11.2	8.6	56.9		

## Comments

See attached Total U calculation and laboratory results

**Table C.1 - Unimportant Quantities of Source Material Uniformly Dispersed in Soil or other Media**

Does the material contain:

- Natural, Refined, or Depleted Uranium - Use the appropriate limit from table C.1a
- Thorium - Use the appropriate limit from table C.1b
- Both Uranium and Thorium - Use the appropriate equation below (SA = Specific Activity in pCi/g):

Natural Uranium + Thorium	Refined Uranium + Thorium	Depleted Uranium + Thorium
$\frac{SA_{Uranium}}{167 \text{ pCi/g}} + \frac{SA_{Thorium}}{110 \text{ pCi/g}} \leq 1$	$\frac{SA_{Uranium}}{333 \text{ pCi/g}} + \frac{SA_{Thorium}}{110 \text{ pCi/g}} \leq 1$	$\frac{SA_{Uranium}}{169 \text{ pCi/g}} + \frac{SA_{Thorium}}{110 \text{ pCi/g}} \leq 1$

Note: • Activity of all progenitors + progeny must be equal to or less than 3000 pCi/g  
• Th-232 will routinely be considered to be in equilibrium with all progeny.

## Calculations

See "total U" calc sheet



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**Table C.2 - NORM other than Uranium and Thorium Uniformly Dispersed in Soil or Other Media**

- Yes  No Does the material contain Ra-226 or Ra-228?  
 Yes  No Does the material contain Lead-210?  
 Yes  No Does the material contain any radionuclides other than NORM?

**Table C.3 - Particle Accelerator Produced Radioactive Material**

- Yes  No Does the material contain Particle Accelerator Produced Radionuclides?  
 Yes  No Does the material contain any radioactive material that was not produced by a Particle Accelerator Produced Radionuclides?

**Comments**

- Note: • The generator must provide an estimated inventory of activity, by isotope, for each container.  
• Dose rate may not exceed 10 mrem/hr at any point on the package surface.  
• Containers must be at least 90% full.

**Table C.4a - NRC Exempted Products, Devices, or Items**

The material is exempt under 10 CFR \_\_\_\_\_

- Note: • Material must be transported in accordance with DOT Rules and Regulations.  
• The generator must provide an estimated inventory of activity, by isotope, for each container.  
• Individual packages may bear White I or Yellow II Labels as long as the maximum surface dose rate on any package does not exceed 10 mrem/hr.

**Table C.4b - Materials Specifically Exempted by the NRC or NRC Agreement State**

- Yes  No Is the material approved for disposal in accordance with 20.2008(b) or equivalent Agreement State regulation? If yes, provide a copy of the exemption.  
 Yes  No Has the waste been approved by the NRC or an Agreement State for alternate disposal in accordance with 10 CFR 20.2002 or Equivalent? If yes, provide a copy of the approval request, exemption, and/or FONSI.  
 Yes  No Was the material approved for alternate disposal via a decommissioning plan or license amendment? If yes, provide a copy of the license or plan.  
 Yes  No Is the material similar to Table C.4b but is not regulated or licensed by the NRC or Agreement State. If yes, provide documentation that the radioactive material is unlicensed. This could be a release of property for unrestricted use by the NRC to another Federal Agency, i.e. the EPA, USACE, etc. or a release for unrestricted use by an agreement state, etc.

**Certification Statement:**

I certify that the contents of the package(s) being shipped to US Ecology Idaho (USEI) are exempt from regulation at the point of generation by the US Nuclear Regulatory Commission, in accordance with 10 CFR \_\_\_\_\_. (List each section of the NRC Regulations that contains and exemption for each type of device or item in the shipment, or are not licensed by the NRC or an agreement state.)

Sigilatore DiAngelis Manager QA/REGULATORY

Name/Title (Please Print)

Chris DiAngelis

Signature

9-14-12

Date



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From:	Mixer Corporation 400 47th Street Niagara Falls, New York 14304 716-285-1493 x132	Consignee To:	US ECOLOGY IDAHO 20400 Lemley Road Grain View, ID 83624 (800) 274-1516	Manifest #:	121312-01
Emergency Contact:	Sal D'Angelo, Mgr. QA and Reg. Affairs	Contact:	Jim Hancock	Shipment #:	i
Originating Carrier:	CSX	Container #:	GACK 9585		
Commingling Carrier(s):	UPRR	Container #:	GACK 9585		
Delivering Carrier:	Steve Ferler Tracking	Tractor #:		Trailer #:	
# of Packages	ITEM	Description			Weight (lbs.)
1	NA	RADIOACTIVE MATERIAL, low specific activity (USA-1), item-Estate, 7, UN2912			150,000
Activity: 0.44 GBq, calculated by the following					
Concentration (pCi/g) Total Curies (pCi)					
Profile #: 29233 Ra-226* 79.7 5,452,696.783					
Th-228 74.22 5,049,843.855					
U-234 23.721 1,545,910.836					
(2,018,451.474 total pCi)					
* activity not included with parent isotopes (i.e., U-238 and Th-232)					
Dose Rates (mrem/hr): Side 1 Side 2-end Side 3 Side 4-end					
0.06 0.025 0.325 0.025					
Containment Level (dpm/cm²): alpha-beta/gamma					
6					

THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED, AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTATION, ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION

UNLESS OTHERWISE NOTED VEHICLE CONTAINS MATERIALS PROPERLY PLACARDED IN ACCORDANCE WITH 49CFR172.500

	DATE	TIME		DATE	TIME		DATE	TIME
ARRIVED AT SHIPPER	11/27/2012	10:00 AM	SCHEDULED	Week of 12/3/2012	Any	LOADING STARTED	12/5/2012	10:00 AM
LOADING COMPLETED	12/7/2012	5:30 PM	VEHICLE RELEASED	12/4/2012	10:00 AM	SHIPPER'S SIGNATURE:		

SIGNATURE TALLY RECEIPT - Must be filled out and signed at origin and each time the shipment changes custody.

Received from Consignor: Change of Custody:

Date: 12/14/12	Time: 10:00 AM	Engine #: _____	Date: _____	Time: _____	Tractor #: _____
X Driver's Signature: CSX			Driver's Signature: _____		

	DATE	TIME		DATE	TIME		DATE	TIME
ARRIVED AT CONSIGNEE			SCHEDULED			UNLOADING STARTED		
UNLOADING COMPLETED			VEHICLE RELEASED			CONSIGNEE'S SIGNATURE:		

RECEIVED THE ABOVE DESCRIBED PROPERTY IN GOOD CONDITION EXCEPT AS NOTED

Exclusive Use Shipment Instructions

1. Must be loaded by consignor and unloaded by the consignee from the conveyance in which originally loaded.
2. Any loading and unloading must be performed by personnel with radiological training and resources appropriate for the safe handling of the consignment.
3. Deliver directly to the consignee.
4. To the extent practical the shipper shall use designated preferred routes unless there is a more direct route that is shorter and/or avoids higher density population areas.

Curtis Hamilton for USEI 1/9/13



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CONTINUATION SHEET

Generator Information: Niacet Corporation

Manifest # 121312-01

Transporter Company 3 Name: Steve Forler Trucking

EPAID: WAR 000 001 263

This is to certify that the materials referenced under this manifest are properly package, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Transporter 3:

SHRAGO BREWER  
Printed Name

Randy Cunlop  
Signature

1-9-13  
Date

**Exclusive Use Shipment Instructions**

1. Must be loaded by consignor and unloaded by the consignee from the conveyance in which originally loaded.
2. Any loading and unloading must be performed by personnel with radiological training and resources appropriate for the safe handling of the consignment.
3. Deliver directly to the consignee.
4. To the extent practical the shipper shall use designated preferred routes unless there is a more direct route that is shorter and/or avoids higher density population areas.

<b>GUIDE TO RADIOACTIVE MATERIALS (LOW TO MODERATE LEVEL RADIATION)</b>		<b>NAERG96</b>	<b>GUIDE TO RADIOACTIVE MATERIALS (LOW TO MODERATE LEVEL RADIATION)</b>	
			<b>NAERG96</b>	
<b>POTENTIAL HAZARDS</b>			<b>EMERGENCY RESPONSE</b>	
<b>HEALTH</b>			<b>FIRE</b>	
<ul style="list-style-type: none"><li>• Radiation presents minimal risk to transport workers, emergency response personnel, and the public during transportation accidents. Packaging durability is related to potential hazards of material.</li><li>• Undamaged packages are safe. Contents of damaged packages may cause external and/or internal radiation exposure.</li><li>• Low radiation hazard when material is inside container. If material is released from package or bulk container, hazard will vary from low to moderate. Level of hazard will depend on the type and amount of radioactivity, the kind of material it is in, and/or the surfaces it is on.</li><li>• Some material may be released from packages during accidents of moderate severity. This poses little risk to people.</li><li>• Released radioactive materials or contaminated objects usually will be visible if packaging fails.</li><li>• Some exclusive use shipments of bulk and packaged materials will not have "RADIOACTIVE" labels. • Placards, markings, and shipping papers provide identification.</li><li>• Some packages may have a "RADIOACTIVE" label and a second hazard label. The second hazard is usually greater than the radiation hazard, so follow this Guide as well as the response Guide for the second hazard class label.</li><li>• Some radioactive materials cannot be detected by commonly available instruments.</li><li>• Runoff from control of cargo fire may cause low-level pollution.</li></ul>			<ul style="list-style-type: none"><li>• Presence of radioactive material will not change effectiveness of fire control techniques.</li><li>• Move containers from fire area if you can do it without risk.</li><li>• Do not move damaged packages; move undamaged packages out of fire zone.</li></ul>	
<b>HAZARD DESCRIPTION</b>			<b>Small Fires</b>	
<ul style="list-style-type: none"><li>• Some of these materials may burn, but most do not ignite readily.</li><li>• Uranium and Thorium metal cuttings or granules may ignite spontaneously if exposed to air (see Guide 138).</li><li>• Nicotines are oxidizers and may ignite other combustibles (see Guide 141).</li></ul>			<ul style="list-style-type: none"><li>• Dry chemical, CO<sub>2</sub>, water spray or regular foam.</li></ul>	
<b>PUBLIC SAFETY</b>			<b>Large Fires</b>	
<ul style="list-style-type: none"><li>• CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.</li><li>• Priorities for rescue, life-saving, first aid, and control of fire and other hazards are higher than the priority for measuring radiation levels.</li><li>• Radiation Authority must be notified of accident conditions, and is usually responsible for radiological decisions.</li><li>• Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions. • Stay upwind. • Keep unauthorized personnel away.</li><li>• Decontaminate or isolate contaminated persons or equipment suspected to be contaminated; delay decontamination and cleanup until instructions are received from Radiation Authority.</li></ul>			<ul style="list-style-type: none"><li>• Water spray, fog (flooding amounts).</li><li>• Dike fire-control water for later disposal.</li></ul>	
<b>PROTECTION/DECONTAMINATION</b>			<b>EMERGENCY RESPONSE</b>	
<ul style="list-style-type: none"><li>• Positive pressure self-contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide adequate protection.</li></ul>			<ul style="list-style-type: none"><li>• Do not touch damaged packages or spilled material.</li></ul>	
<b>EVACUATION</b>			<b>Liquid Spills</b>	
<ul style="list-style-type: none"><li>• Consider initial downwind evacuation for at least 100 meters (330 feet).</li><li>• Fire</li><li>• When a large quantity of this material is involved in a major fire, consider an initial evacuation distance of 300 meters (1000 feet) in all directions.</li></ul>			<ul style="list-style-type: none"><li>• Cover with sand, earth or other noncombustible absorbent material.</li><li>• Dike to collect large liquid spills.</li><li>• Cover powder spill with plastic sheet or tarp to minimize spreading.</li></ul>	
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### QA Check on LSA-I Shipments

Gondola Number: GACX 9585 Container Number: NA

1. Check all joints and hinges to determine that a good seal has been achieved.

- Hinges not severely bent or deformed.
- All surfaces of closures show no potential for leakage.
- N/A Shipment by rail

2. Check that internal wrapper is closed and intact.

- Visual check of wrapper- closed.
- Liner in tact.
- N/A

3. Check that tarp is secure.

- All tie-downs secure.

4. Check markings or labels.

- One Radioactive LSA marking.
- One RADIOACTIVE placard on each side of conveyance.

5. Paperwork

- Transporter has LSA-Hazardous Materials Shipping Papers
- Transporter has exclusive use instructions with USEI LSA-Hazardous Materials Shipping Papers.

6. Swipe results

- Swipe results less than 6600 dpm/300 cm<sup>2</sup>.

Signature:

Date: 2012.12.13 15:54:05

-05'00'

Date:



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Exempt Radiological Procedure Manual

Figure 2-1  
EMPTY CONTAINER DECONTAMINATION / RETURNED TO SERVICE FORM  
EXEMPT MATERIAL CONTAINER SWIPE SAMPLE (300 SQ.CM)CONTAINER NUMBER (IMC)/ID. No. GACX9585      SHIPPING DOCUMENT NUMBER: 121312-01Step 1: Is container "Visibly Clean? Yes  No 

If Step 1 is answered "yes", then proceed to Step 2.

## Step 2: Equipment Required

Serial Number:

- (a) Ludlum Alpha/Beta Scintillator - *Phoswich detector* (Model 43-2-2) or equivalent => a. PR179311  
(b) Ludlum Sample Holder (Model 180-1) or equivalent => b. \_\_\_\_\_  
(c) Ludlum Scaler / Ratemeter (Model 2224-1) or equivalent => c. 171600  
(d) Bicron MiroRem or equivalent: => d. BO64H

a. Calibration Date : 09/21/2013b. Calibration Date : 10/23/2013

## A. ALPHA

Background: 2 (cpm)Efficiency: 37.90 % (cpm/dpm)

## Inside Readings

## Front

Swipe 1: 0 cpmSwipe 1: 0 dpm

## Right

Swipe 2: 0 cpmSwipe 2: 0 dpm

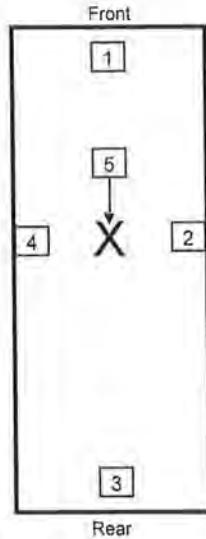
## Rear

Swipe 3: 3 cpmSwipe 3: 3 dpm

## Left

Swipe 4: 0 cpmSwipe 4: 0 dpm

## Center

Swipe 5: 1 cpmSwipe 5: 0 dpm

## B. BETA

Background: 59 (cpm)Efficiency: 44.59 % (cpm/dpm)

## Inside Readings

## Front

Swipe 1: 65 cpmSwipe 1: 13 dpm

## Right

Swipe 2: 73 cpmSwipe 2: 31 dpm

## Rear

Swipe 3: 62 cpmSwipe 3: 7 dpm

## Left

Swipe 4: 59 cpmSwipe 4: 0 dpm

## Center

Swipe 5: 65 cpmSwipe 5: 13 dpmStep 3: (Fixed Contamination) Can the container be Returned to Service ( $\leq 6600$  dpm/swipe sample), and  $< 500 \mu\text{rem}$ )Yes  No 

## TOTAL CONTAMINATION - DPM/SWIPE (ALPHA+BETA):

A. 1. 13 dpm, 2. 31 dpm, 3. 10 dpm, 4. 0 dpm, 5. 13 dpmB. Approved for Returned to Service by: JSPENCER  
(Printed Name of Radiation Technician)C. Signed: JSPENCER  
Radiation Technician01/09/2013      7:02  
Date      Time

"Visibly clean" means potentially contaminated material on the interior of EXEMPT MATERIAL container, which can practically be removed with a broom, shovel or other similar hand tool is removed. Material that is practical to remove with a broom and/or shovel implies that there will be some "non-fixed" residue remaining. The amount of residue left on the container surface could include streaks and clumped particles left by the broom or shoveling activity. However, a representative wipe sample of this residue will be obtained and analyzed utilizing this Returned to Service procedure.

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Figure 2-2

Exempt Radiological Procedure Manual

US ECOLOGY IDAHO, INC.  
DISINTEGRATIONS PER MINUTE CALCULATION WORKSHEET

Date: 01/09/2013

Time: 7:02

Container Number: GACX9585

Associated Manifest Number: 121312-01

This form must be saved in the worksheet log to be filled at USEI Site B for future reference.

WIPE SAMPLE RESULT FOR ALPHA			
Sample Number	Gross Alpha Counts Per Min. (Enter result of Step 2.A) <sup>1</sup>	Net Alpha Counts (Gross $\alpha$ - $\alpha$ Background)	Alpha dpm for each Swipe (Net $\alpha$ + $\alpha$ Counting Efficiency) (Enter results on Step 2.A) <sup>1</sup>
1	0	0	0
2	0	0	0
3	3	1	3
4	0	0	0
5	1	0	0

WIPE SAMPLE RESULT FOR BETA			
Sample Number	Gross Beta Counts Per Min. (Enter result of Step 2.B) <sup>1</sup>	Net Beta Counts (Gross $\beta$ - $\beta$ Background)	Beta dpm for each Swipe (Net $\beta$ + $\beta$ Counting Efficiency) (Enter results on Step 2.B) <sup>1</sup>
1	65	6	13
2	73	14	31
3	62	3	7
4	59	0	0
5	65	6	13

TOTAL DPM PER SAMPLE			
Sample Number	$\alpha$ dpm	$\beta$ dpm	Swipe Sample dpm (Net $\alpha$ dpm + $\beta$ dpm) (Enter results on Step 3.A) <sup>1</sup>
1	0	13	13
2	0	31	31
3	3	7	10
4	0	0	0
5	0	13	13

Note: The data in the shaded column must be transferred to be the Decontamination/Returned to Service Form (ERMP 02 Figure 2-1 as indicated above (ie Step 2.A, etc)

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## **Appendix H**

### **Photolog**



**Picture 1: Initial Site Setup of Asphalt Excavations between Building #102 and Railspur**



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**Picture 2: Saw Cutting of Asphalt**



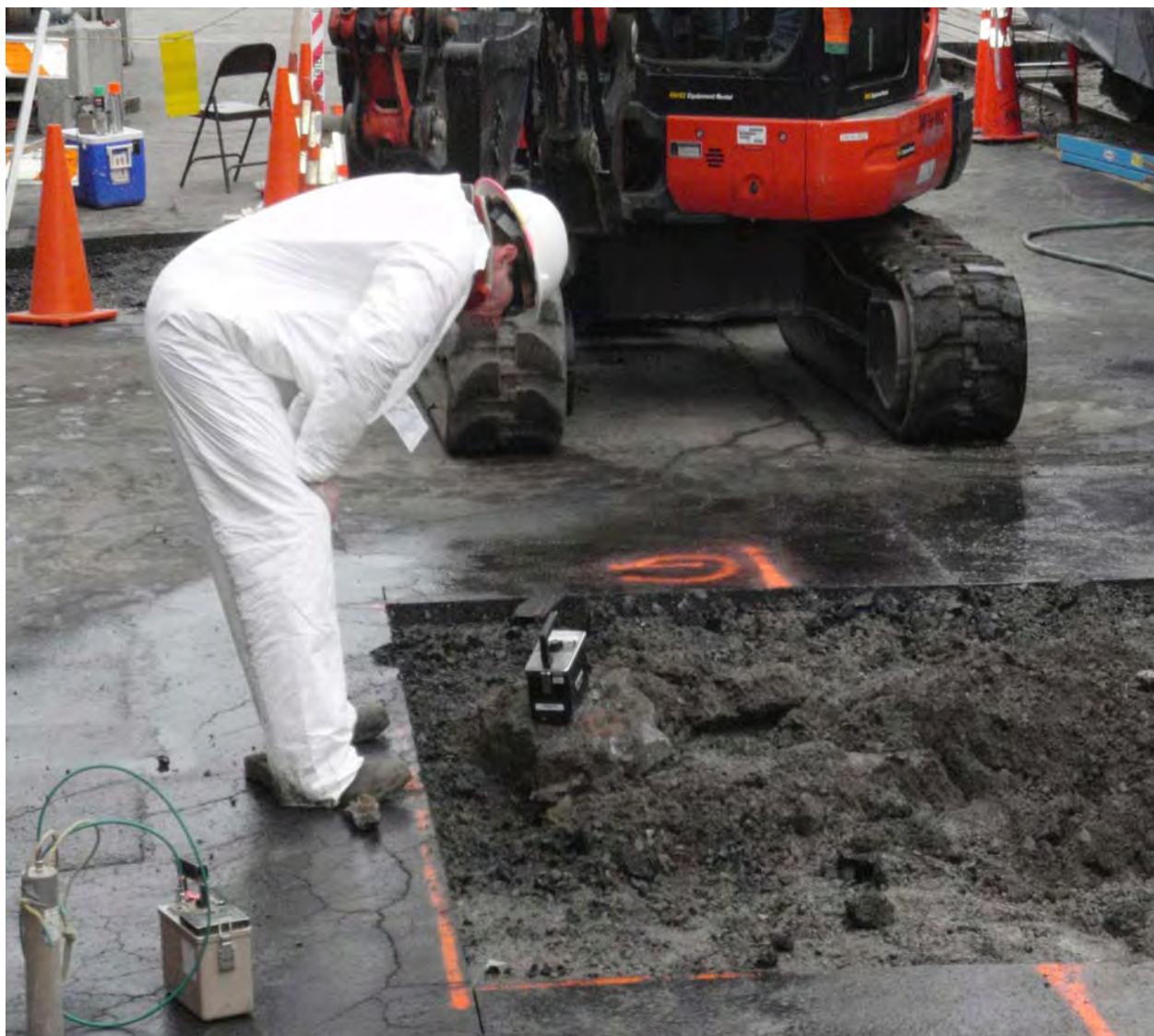
**Picture 3: Use of Kubota in Tight Spot to Excavate HSB1 Hot Rock near Building #102**



**Picture 4: Excavation and Direct Loading of Material from HSB2/3**



**Picture 5: Delineating ‘Hot’ Versus “Clean” areas within HSB1**



**Picture 6: Million Plus CPM Rock within HS-6 Excavation**



**Picture 7: “Hot” Rocks Pulled from HS-7 adjacent to Building #102**



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**Picture 8: Stone Backfill Initiated with HSB2/3 Excavation**



**Pictures 9 and 10: Asphalt Preparation and Placement**



**Picture 11: Super Load Wrapper Packaging in Gondola Rail Car**