



Fugitive Dust Control Plan

Merrimack Station Coal Ash Landfill Bow, New Hampshire

May 2019



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1.0 Introduction

On April 17, 2015, the United States Environmental Protection Agency (US EPA) published the final rule on Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals (CCR) from Electric Utilities under 40 Code of Federal Regulations (CFR) Parts 257 and 261. The rule regulates the disposal of CCR as a solid waste under subtitle D of the Resource Conservation and Recovery Act (RCRA). CCR includes fly ash, bottom ash, boiler slag, and flue gas desulfurization materials. The rule includes minimum criteria for existing and new CCR landfills and existing and new CCR surface impoundments and all lateral expansions consisting of location restrictions, design and operating criteria, groundwater monitoring and corrective action, closure requirements and post closure care, and recordkeeping notification, and internet posting requirements. The final rule is effective on October 19, 2015.

The final rule requires owners or operators of CCR units to record certain information in the facility's operating record. In addition, owners and operators are required to maintain a publicly accessible internet site for this information, hereinafter referred to as CCR website.

This plan was prepared to satisfy the air operating criteria of 40 CFR 257.80, which requires the owner or operator of a CCR landfill to adopt measures that will effectively minimize CCR from becoming airborne at the facility, including CCR fugitive dust originating from CCR units, roads, and other CCR management and material handling activities. This plan does not cover any potentially applicable standards under the Occupational Safety and Health Act.

1.1 General Facility Description

GSP Merrimack LLC owns and operates the Merrimack Station coal ash landfill located at 67 Ryan Road in Bow, New Hampshire (parcel 40-2-200-B) as a disposal facility for ash generated at the Merrimack Station electrical generation facility. The landfill was designed for the disposal of ash residuals from the combustion of coal at Merrimack Station and meets the criteria of an existing CCR landfill under 40 CFR Part 257. The landfill is a single lined facility, approximately 5.5 acres in size with a capacity of approximately 300,000 cubic yards. The landfill is currently permitted by the New Hampshire Department of Environmental Services (NHDES) Waste Management Division, under Permit No. DPHS-SW-85-012.

1.2 Landfill Operation Description

GSP Merrimack LLC operates the landfill in accordance with the Merrimack Station Coal Ash Landfill Operating Plan. While continuous operation of the landfill is not anticipated, the facilities will be available for operation on an as-needed basis 24 hours per day, 365 days per year. Standard hours of operation are Monday through Friday, 7:00am to 4:00pm. The landfill is fenced and access gates are kept locked at times when the operator is not present.

Waste materials accepted for disposal at the facility primarily include fly ash and slag generated at Merrimack Station in Bow, New Hampshire. Other limited quantities of material disposed intermittently at the facility include, but are not limited to, waste materials from Merrimack Station such as coal, dirt, slag, demineralizer resins, pond dredgings and sand blast grit.

During operation of Merrimack Station's coal-fired boilers, roll-off containers are positioned at specific intermediary locations (e.g., beneath the Selective Catalytic Reduction (SCR) system hoppers) to collect ash that settled out prior to the electrostatic precipitator collection system.¹ In addition, vacuum trucks periodically are used to collect ash from the boiler and flue gas systems during unit outages. Only these roll-off containers and ash vacuum trucks are routinely accepted at the landfill. All wastes are directly disposed of in the landfill within the grades shown on Figure 1². There is no temporary stockpiling or treatment of the ash prior to landfilling. All temporary storage occurs in sealed truck compartments or covered roll-off containers.

Vacuum trucks and/or trucks transporting roll-off containers typically enter through a gate on the west side of the landfill (Ryan Road) and drive to the landfill base or onto a working lift elevation. The trucks dump their loads in a designated work area, and periodically a front-end loader or bulldozer places the ash on top of the active lift. Lifts are constructed in 10 to 20 foot heights and are compacted by equipment traffic.

For filling on the east side of the landfill in accordance with the intermediate grading plan (Figure 1), a similar filling method is employed. Trucks drive to the top of the landfill as near to the active fill area as possible and a bulldozer or front-end loader grades the ash to the final landfill slopes. Alternative filling procedures may occasionally be necessary to properly locate ash and achieve design grades. Sand cover is layered over the recently placed ash until the closure elevations are reached and the final cover system is placed.

1.3 Roles and Responsibilities

Station responsibilities include general site management and reasonable minimization of fugitive dust as detailed in this plan. The Station Manager is responsible for overall site management. Day-to-day activities at the landfill may be performed by a contractor, under the direction and management of the Operations Manager. The Maintenance Manager is responsible for periodically monitoring transportation of wastes from the station to the landfill and has complete authority to temporarily reduce or halt landfill operations or implement fugitive dust control measures, as appropriate for the observed operating conditions and is not limited to the control measures defined in this plan. The Operations and Maintenance Managers may delegate their role and its authority to other plant personnel. Alternate control measures that prove successful will be

¹ Ash collected from the electrostatic precipitators is conveyed to a silo and trucked offsite for beneficial reuse by others.

² Figure 1 is the Proposed Intermediate Grading Plan prepared by Sanborn, Head, and Associates Inc. as part of a June 2012 Closure Drawing package for Permit No. DPHS-SW-85-012.

included in future plan evaluations and revisions as described in accordance with Section 4.2 Recordkeeping and Section 5.2 Plan Revisions.

All contractors must be notified of the best management practices included in this plan. The requirements for contractors are described in Section 4.1 and a Fugitive Dust Awareness Guide to be provided to the contractor and posted at the facility is included in Appendix A.

GSP Environmental Staff is responsible for annual reporting and periodic review and update of this plan, as described in Sections 4.3 and 5.2.

2.0 Fugitive Dust Control

2.1 Identification of Potential Dust Sources

Potential fugitive dust sources associated with the Merrimack Station Coal Ash Landfill operations include ash transfer points, transportation on paved and unpaved access roads, and uncovered ash material. The following sections describe each of these potential dust sources in further detail.

2.1.1 Coal Ash Transfer Points

During operation of Merrimack Station's coal-fired boilers, two 30-cubic yard roll-off containers are positioned at specific locations (i.e., beneath the Unit 2 Selective Catalytic Reduction (SCR) system hoppers and shot system) to collect ash. When the boilers operate continuously, these roll-off containers reach capacity approximately every 48 hours, and as such, are transported to the landfill for disposal 3 to 4 times per week.

In addition, 16-cubic yard vacuum trucks are periodically used to collect residual ash from the boiler and flue gas systems during planned annual outage and forced unit outage events. A single vacuum truck typically can transport one load per 10 hour shift. Vacuum truck cleanout events during forced outages typically occur 3 to 4 times per year, with each event lasting approximately 4 to 5 days. Annual outages typically utilize up to five vacuum trucks per day for 4 to 5 days (2 shifts per day), followed by one vacuum truck per day for 30 days.

The potential for fugitive emissions is present at both the truck/container ash loading and unloading transfer points. Fugitive dust control measures applicable during coal ash transfer include water spray, reduction of fall distances and speed during material offloading, natural enclosures, truck covers, housekeeping, and reduced or halted operations during high wind events. These methods are described in further detail in Section 2.2.

2.1.2 Transportation

The travel route between Merrimack Station and the Coal Ash Landfill consists of a 0.8-mile paved route from River Road to Ryan Road via Thibeault Drive. Dirt roads are located within the boundary of the landfill property. Figure 2 illustrates the travel route on a local area aerial image.

Truck traffic on these roads associated with the landfill operations includes vacuum trucks and roll-off container trucks at a maximum frequency described in Section 2.1.1 above. In general, the actual vehicle traffic volume is low and intermittent.

Potential fugitive dust from paved roads may include material tracked from unpaved surfaces onto paved roads by vehicle traffic, and/or material fallout from vehicles. Potential fugitive dust from unpaved roads may be caused by dry road conditions, wind erosion, vehicle traffic, and/or material fallout from vehicles. Fugitive dust control measures applicable during ash transportation include vehicle speed limits, reduction of material track-out, truck covers, and housekeeping. These methods are described in further detail in Section 2.2.

2.1.3 Uncovered Coal Ash Material

Material that is stored uncovered has the potential to emit fugitive dust. Potential fugitive dust from the landfill operations may be caused by heavy equipment performing excavation on slopes within active areas and/or wind erosion. Fugitive dust control measures applicable to uncovered coal ash material include natural enclosures, compaction, vegetative covers, truck covers, and reduced or halted operations during high wind events. These methods are described in further detail in Section 2.2.

2.2 Dust Control Measures

The Operations and Maintenance Managers or their designee will coordinate ash transport and placement activities and will assess the need for dust control on a continuing basis. The following methods are available to minimize fugitive emissions associated with ash landfill operations at Merrimack Station.

2.2.1 Natural Enclosures

Upon placement of ash material at the landfill, natural property features such as trees, vegetation, and topography act as a partial enclosure to provide protection from wind erosion. The elevations within the fenced perimeter of the landfill range from approximately 220 feet to 290 feet above sea level including capped sections, working elevations, and unfilled cells. Based on contour mapping available through the Town of Bow, elevations in the immediate vicinity of the landfill (on GSP property and adjacent properties to the south, east, and west) generally range from 280 feet to 360 feet above sea level, and are lined with trees which provide suitable protection from wind erosion. Elevations on adjacent properties to the northwest of the landfill range from 240 feet to 280 feet

above sea level, however, the northern capped portion of the landfill (at El. 290) provides a topographic barrier between adjacent properties and lower working elevations.

Figure 3 provides a topographic map of the site and surrounding properties. Note that Figure 3 does not show the recent subdivision of parcel 200-B into 200-B and 200-B-2, however the figure serves its purpose to illustrate surrounding topography.

The surrounding topography serves as a natural wind barrier, while trees and vegetation serve as a buffer to reduce wind velocity and help to prevent fugitive emissions from erosion of the stored material. GSP will continue to preserve the natural features that constitute this partial enclosure on the landfill property to the extent practicable.

2.2.2 Water Spray

The ash material can be conditioned with water spray during loading to reduce fugitive emissions during unloading. The Maintenance Manager or his designee will determine the feasibility and appropriateness of water-spray use on a case-by-case basis depending on factors affecting the effectiveness of this dust control measure. Such factors include but are not limited to variances in the physical properties of the coal ash material and ambient air temperature. For example, the roll-off containers typically are positioned in areas that collect coarser ash material less likely to become airborne, therefore other control methods as discussed in this plan may be preferred over water spray, on a selective basis. A water truck can also be utilized as needed to prevent offsite dust impacts from the coal ash landfill. When ambient air temperatures are below freezing or if ice is present, water trucks and water sprays will be used sparingly, at the discretion of the Operations and Maintenance Managers or their designee, to maintain safe and workable conditions.

The amount of water used must be carefully regulated to prevent excess water (free liquids) from leaking from containers during transport and/or being disposed with the ash material at the landfill. Water that infiltrates the active portion of the landfill is conveyed via drain pipes to a holding tank until it is transferred to Merrimack Station for on-site treatment.

2.2.3 Reduction of Fall Distances and Speed during Material Offloading

To the extent practicable, contractors will reduce the fall distances and speed when offloading material at the landfill to minimize fugitive emissions. Material will be allowed to fall naturally from truck compartments and roll-off containers upon opening doors/hatches prior to elevating the compartments/containers to release the remainder of the material via gravity. Compartments and roll-off containers will be elevated gradually to prevent rapid release of material and maintain truck balance.

2.2.4 Compaction

Coal ash material is routinely placed on working elevations at the landfill in lifts of 10 to 20 foot heights. The material is compacted via heavy equipment traffic. Equipment such as bulldozers and front-end loaders will be used to handle and distribute material across the working landfill

elevations after it is offloaded from truck compartments or roll-off containers. The compaction of the material makes it more difficult for particles to become airborne, thereby reducing the potential for fugitive dust emissions.

2.2.5 Vegetative and Sand Covers

The cover system used at the landfill varies depending on the approved specifications at the time of cover placement. In general, the cover consists of 12 inches of sand bedding overlain by a geomembrane layer (Hypalon or High Density Polyethylene), below an additional 12-18 inch layer of sand with a 4 to 10-inch layer of topsoil (fertilized and seeded). This cover system is present on the inactive portion of the landfill (north side), and eliminates the potential for windblown coal ash particles. The active portion of the landfill utilizes sand cover to temporarily reduce fugitive emissions until the closure elevations are reached and the final cover system is placed. The sand cover is placed on an approximately weekly basis (more or less frequently as determined necessary by the ash transfer schedule and routine visual observations). Careful coordination is necessary between the Operations and Maintenance Managers (or their designees) and contractors to ensure that ash grading, compaction, and sand cover is timely following transfer of ash to the landfill.

GSP is also evaluating alternate means for temporary cover including: crusting agents, loam, and tarps (or some combination thereof). Trials may be performed to test the effectiveness of these or other alternative temporary covers. Should any of these methods prove to be feasible and more effective than sand cover, GSP will update this fugitive dust plan to rely on the most effective methods for dust control.

2.2.6 Vehicle Speed Limits

The Merrimack Station road speed limit is 15 miles per hour (mph) and will be strictly enforced by site security personnel both for safety and fugitive dust control. A single site entrance and exit isolates the traffic to one area. Speed limit signs are posted at the station entrance and along the paved station access roads.

The River Road, Thibeault Drive, and Ryan Road speed limits are 30 mph and are routinely enforced via local police.

At the landfill, vehicular traffic is advised to lower its speed, based on off-road conditions, to a speed that generates minimal dust. If drivers observe dust generated from their vehicles while traveling on dirt access roads, they must contact the Operations Manager or his designee who will coordinate a water truck to spray the roads, if necessary.

As described in Section 4.1, site personnel and contractors will be trained on the details of this plan, including appropriate vehicle travel speeds. For contractors who are deemed by GSP to be traveling in excess of posted speed limits, or in excess of speeds appropriate for the road and

weather conditions, the following actions will be taken in progressive order: 1) warning, 2) GSP liaison to report to contractor's supervisor, 3) site removal with access denial.

2.2.7 Reduction of Material Track-Out

The access roads at Merrimack Station and the route of travel to the landfill from River Road to Ryan Road via Thibeault Drive are paved. The landfill entrance at Ryan Road is new as a result of subdivision of the property during ownership transfer in 2018. Previous admittance to the landfill was via a 750-foot long paved shared driveway on River Road.

If at any time it is deemed necessary to support this fugitive dust plan, GSP can evaluate paving the new Ryan Road entrance driveway to provide a buffer between the unpaved access roads and the paved public roadway. This buffer would minimize dust track-out onto public roadways and, relatedly, reduce off-site fugitive emissions.

2.2.8 Truck Covers and Housekeeping

The coal ash material is transferred from enclosed boiler and flue gas systems to roll-off containers and/or vacuum trucks for transportation to the landfill. Hard covers are used on roll-off containers. Since vacuum trucks are completely enclosed, the potential for fugitive dust during storage or transportation is negligible.

To the extent practicable, as determined by safety and operational considerations, vacuum truck operators will cap unused fill ports (e.g., cam lock caps) on trucks. Securing unused fill ports can help reduce fugitive emissions during filling.

Cleaning of the wheels and bodies of the trucks will be the responsibility of each truck operator. Material accumulated on the truck exteriors can be removed dry brushing/sweeping or alternate procedures as warranted. It will also be the responsibility of the truck operator to maintain the body of the truck in good condition to ensure that material does not escape during shipment.

2.2.9 Reduce or Halt Landfill Operations during High Wind

Although the landfill is partially enclosed by natural site features, high winds have the potential to impact fugitive emissions associated with landfill operations. For the purposes of this fugitive dust plan, high wind conditions are considered to be sustained winds in excess of 15 mph, as estimated based on field observations and/or local area weather reports. The presence of high wind conditions warrants further evaluation. GSP will reduce or halt offloading of materials at the landfill during high wind conditions at the discretion of the Maintenance Supervisor or his designee based on actual observed site conditions, wind direction, gusts, etc. In some cases, it may be appropriate to continue handling (grading, compaction, sand cover) ash material during high winds, as these are preventative measures that may reduce the potential for loose ash material to

become airborne. Appendix B contains a guide issued by the National Oceanic and Atmospheric Administration (NOAA) for estimating wind speeds with visual clues.

2.3 Corrective Actions

The observation of visible emissions does not, in and of itself, demonstrate noncompliance with the applicable requirements of 40 CFR Part 257, but is a signal to trigger investigation and, if necessary, reasonable and appropriate corrective action.

Corrective actions may include: notifying the appropriate personnel, initiating control measures, or temporarily reducing or halting the landfill operations, all within a reasonable timeframe to mitigate fugitive dust emissions.

All corrective actions will be documented using the logs in Appendix C.

3.0 Procedure for Citizen Complaints

In accordance with 40 CFR 257.80(b)(3) as an element of the fugitive dust control plan, citizens may contact the Merrimack Station Working Foreman - Operations to log complaints related to fugitive dust events at the Merrimack Station coal ash landfill. The Working Foreman - Operations is available 24 hours per day, 7 days per week. The Working Foreman - Operations will record basic contact information and relay the information to station management (Station Manager, Operations Manager, Assistant Operations Manager, Maintenance Manager) and GSP environmental staff in a timely manner. The Station Manager or his designee will be responsible for returning citizen calls to discuss observations related to fugitive dust events.

Merrimack Station Working Foreman - Operations (24 x 7): **(603) 230-7903**

The GSP environmental staff will keep a log of citizen complaints and coordinate with station management to investigate and address relevant comments with corrective actions, as feasible and appropriate based on the nature of the complaint.

All complaints and associated corrective actions will be documented using the logs in Appendix C and must be posted to the facility's CCR website within 30 days of placing the information in facility's operating record.

4.0 Training, Recordkeeping, and Reporting

4.1 Training

GSP personnel and contractors involved with landfill operations will be:

- Instructed on the various best practices for preventing/minimizing fugitive dust emissions while operating equipment and transferring material;
- Trained to act when the dust controls that are being used are not preventing the generation of fugitive dust emissions;
- Informed that they have the authority to temporarily cease operation of trucks or equipment associated with landfill operation; and
- Instructed to follow the requirements of this plan and associated appendix material.

Training will be provided initially and when changes to this plan are made that may affect the employees' or contractor's responsibilities under this plan. Training will be provided by environmental staff or their designee to at least one representative from each Contractor, who will be responsible for training others within their company on the requirements of this plan. In addition, a one-page Fugitive Dust Awareness Guide is included in Appendix A and will be provided to employees and contractors involved in landfill operations and will also be posted at the landfill site.

Training will be documented using the training log in Appendix D. Training records will be maintained by GSP environmental staff.

4.2 Recordkeeping

In addition to the general recordkeeping requirements outlined in Merrimack Station's Coal Ash Landfill Operating Plan, GSP environmental staff will retain a facility operating record that includes documentation specific to this plan including but not limited to training, citizen complaints, and corrective actions.

A log book shall be maintained as part of the facility's operating record. Periodic log book entries shall be made to document landfill activities and active fugitive dust control measures utilized, including but not limited to: high wind "stop work" events, water application, and record of any other active efforts to reduce fugitive dust. These records will be used to prepare annual reports as described in Section 4.3.

Documentation of employee and contractor training shall be recorded using the log sheets in Appendix D. These records shall be maintained as part of the facility's operating record.

Documentation of citizen complaints and corrective actions shall be recorded using the log sheets in Appendix C. These records shall be maintained as part of the facility's operating record and shall be posted to the facility's CCR website within 30 days of placing the information in the operating record. GSP environmental staff is responsible for coordinating the upload of records required by this plan to the facility's CCR website.

All records will be reviewed annually by GSP environmental staff to assess the effectiveness of the fugitive dust control plan. The annual review will be documented as part of the annual report.

All records required by this plan must be retained in the facility's operating record for at least five years following the date of each occurrence, maintenance, corrective action, report, or record.

Records required to be posted to the facility's CCR website must also be available on the website for five years following the date on which the information was first posted.

4.3 Reporting

GSP environmental staff is responsible for the submission of an annual fugitive dust control report that includes a description of the actions taken by the owner or operator to control fugitive dust, a record of all citizen complaints, and a summary of any corrective measures taken. The report will also include an assessment of the effectiveness of this fugitive dust control plan. The initial annual report will be completed no later than 14 months after the initial fugitive dust control plan is first placed in the facility's operating record. The deadline for completing a subsequent report is one year after the date of completing the previous report. The report shall be uploaded to the facility's CCR website within 30 days of placing the report in the facility's operating record.

As required by 40 CFR 257.106(g), GSP environmental staff will provide notification to the New Hampshire Department of Environmental Services (NHDES) Solid Waste Management Bureau each time the following information is placed in the facility's operating record or on the facility's CCR website: fugitive dust control plan or any amendment of the plan, annual fugitive dust control report, or documentation detailing corrective measures taken to remedy a deficiency.

5.0 Certification and Plan Revisions

5.1 Certification Statement

As required by 40 CFR 257.80(b)(7), this fugitive dust plan is certified by a Professional Engineer licensed in the State of New Hampshire, who is qualified by education, technical knowledge and experience to make the specific technical certifications of this plan. This plan represents the Professional Engineer’s judgment of the measures that are anticipated to be effective based on the information available at the time of plan preparation. As detailed in Section 4.2, the effectiveness of the control measures will periodically be assessed and the plan can be amended at any time.

5.2 Plan Revisions

When coal ash material handling changes occur at the plant, alternate control measures are identified, or when modifications are made to the regulations that affect this fugitive dust control plan, GSP will modify this plan as needed to incorporate the changes or modifications and any new best practices that may be needed.

Revisions will be recorded in the table below. All plan revisions must be certified by a qualified professional engineer to confirm that all plan amendments meet the requirements of 40 CFR Part 257 pertaining to the reduction of fugitive dust from the Merrimack Station coal ash landfill.

Revision Date:	Revised By:	Description of Revisions:
May 2019	MAC	Change of ownership, landfill entrance relocation and change of address, revise roles and responsibilities due to personnel changes, reduce high wind threshold for “stop work” decision from 25 mph to 15mph, revise progressive discipline for speed limit infractions, stress importance of communication to sync up ash transfer activities with timely grading, compaction, and sand cover, add notes re: evaluation of alternate temporary cover, other minor revisions for accuracy and clarity
October 2015	MAC	Original plan issuance

Figure 1

June 2012 Proposed Intermediate Grading Plan

Prepared by Sanborn, Head and Associates, Inc.

Figure 2

Travel Route for Merrimack Station Landfill Operations

Figure 2 – Travel Route for Merrimack Station Landfill Operations



Figure 3

Town of Bow – Topographic Map

Appendix A

Fugitive Dust Awareness Guide – Active Control Measures

Merrimack Station Coal Ash Landfill

Fugitive Dust Awareness Guide – Active Control Measures

Water spray

- Utilize water spray to condition coal ash during loading or placement
- Use caution to avoid presence of free liquids
- When ambient air temperatures are below freezing or if ice is present, use judgement to halt use of water spray to maintain safe and workable conditions

Reduction of Fall Distances and Speed during Material Offloading

- Upon opening doors/hatches, allow material to fall naturally prior to elevation of truck compartments
- Elevate compartments and roll-off containers gradually to prevent rapid release of material and maintain truck balance

Compaction

- Compact unloaded coal ash material via heavy equipment traffic in a timely manner

Temporary Sand Cover

- Place a temporary sand cover over exposed coal ash material weekly, or more often as needed, to prevent wind erosion

Vehicle Speed Limits

- Merrimack Station: 15 mph
- River Road, Thibeault Drive, Ryan Road: 30 mph
- Merrimack Station Landfill: Slow speeds that generate minimal dust
- Operators in violation of speed limits will receive warning prior to site access denial

Truck Covers and Housekeeping

- Cover unused ports on vacuum trucks, as allowed by safety and operational considerations
- Cover roll-off containers during storage and transport
- Routinely clean the wheels and bodies of trucks using dry brushing/sweeping/etc.
- Maintain trucks and containers in good condition to ensure that material does not escape during shipment

Reduce or Halt Landfill Operations During High Wind

- During high wind (>15mph sustained) conditions, make decision to reduce or halt operations based on site observations, wind direction, gusts, or other weather factors
- Wind speed estimates can be based on field observations or local area weather reports

Appendix B

NOAA Guide to Estimate Wind Speed with Visual Clues

Estimating Wind Speeds with Visual Clues

Beaufort number	Description	Speed	Visual Clues and Damage Effects
0	Calm	Calm	Calm wind. Smoke rises vertically with little if any drift.
1	Light Air	1 to 3 mph	Direction of wind shown by smoke drift, not by wind vanes. Little if any movement with flags. Wind barely moves tree leaves.
2	Light Breeze	4 to 7 mph	Wind felt on face. Leaves rustle and small twigs move. Ordinary wind vanes move.
3	Gentle Breeze	8 to 12 mph	Leaves and small twigs in constant motion. Wind blows up dry leaves from the ground. Flags are extended out.
High Wind Threshold	4 Moderate Breeze	13 to 18 mph	Wind moves small branches. Wind raises dust and loose paper from the ground and drives them along.
	5 Fresh Breeze	19 to 24 mph	Large branches and small trees in leaf begin to sway. Crested wavelets form on inland lakes and large rivers.
	6 Strong Breeze	25 to 31 mph	Large branches in continuous motion. Whistling sounds heard in overhead or nearby power and telephone lines. Umbrellas used with difficulty.
	7 Near Gale	32 to 38 mph	Whole trees in motion. Inconvenience felt when walking against the wind.
	8 Gale	39 to 46 mph	Wind breaks twigs and small branches. Wind generally impedes walking.
	9 Strong Gale	47 to 54 mph	Structural damage occurs, such as chimney covers, roofing tiles blown off, and television antennas damaged. Ground is littered with many small twigs and broken branches.
	10 Whole Gale	55 to 63 mph	Considerable structural damage occurs, especially on roofs. Small trees may be blown over and uprooted.
	11 Storm Force	64 to 75 mph	Widespread damage occurs. Larger trees blown over and uprooted.
	12 Hurricane Force	over 75 mph	Severe and extensive damage. Roofs can be peeled off. Windows broken. Trees uprooted. RVs and small mobile homes overturned. Moving automobiles can be pushed off the roadways.

Source: National Weather Service Portland, <http://weather.gov/portland>

Appendix C

Complaint and Corrective Action Logs

Citizen Complaint Recorded By: _____

Citizen Contact (Name, Address, Phone):	Date of Complaint:	Description of Complaint:	Corrective action completed or forwarded to others for completion? Describe.

Note:

Any corrective actions completed as a result of a citizen complaint must also be logged in detail on the corrective actions log (also in Appendix C) and posted to the facility's CCR website within 30 days.

Corrective Action Logged by: _____

Issue Requiring Corrective Action:	Date Identified:	Issue Initially Observed by (name):	Description of Corrective Actions Completed (include completion date):

Note:

Any corrective actions completed as a result of a citizen complaint must also be posted to the facility's CCR website within 30 days.

Appendix D
Training Logs

