

GUIDELINES FOR DEVELOPING A PPC PLAN

SAMPLE PPC PLAN FOR CONSTRUCTION ACTIVITIES

This sample PPC plan guidance should provide general supplemental information to the Guidelines for Developing a PPC Plan. However, since sites vary, the developer of the PPC Plan should evaluate the site specific needs such as size and complexity of the site, pollutants present, emergency response, security, and other factors to determine if additional information needs to supplement or replace this general guidance.

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FORWARD

Under the National Pollutant Discharge Elimination System (NPDES) Stormwater Permitting Program, regulated construction activities include clearing, grading and excavation activities except operations that result in the disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale. Regulated activities must be covered under a general or Individual Permit for Stormwater Discharges Associated with Construction Activity. Authorization to discharge stormwater under both the Individual and general permit is contingent upon the development of a site specific erosion and sediment control (E&S) plan and the development of a Preparedness, Prevention, and Contingency (PPC) Plan for construction activities. Both of these plans must be maintained onsite for the duration of the permit. The E&S Plan must be submitted along with the NOI to the reviewing entity¹. A PPC plan is required if chemical, solvents, hazardous wastes, or any material with the potential for causing accidental pollution of air, land, or water is stored or utilized on site during the construction activity.

The purpose of the PPC Plan is to ensure that Best Management Practices (BMPs) have been developed and implemented at the construction site to control potential discharges of pollutants other than sediments into receiving waters. This guidance will provide the preparer of the PPC Plan the format and elements for developing a PPC Plan.

¹ Reviewing entity - for the purposes of the general permit, shall generally mean the local county conservation district. Persons seeking coverage under the general permit must contact the local county conservation district in the county for which coverage is sought to ascertain if the district is participating as the entity reviewing NOI's submitted pursuant to the general permit. The Department is the reviewing entity in a given county if the local county conservation district chooses not to participate in the review of the NOI's submitted pursuant to this general permit.

INTRODUCTION

Sediment (both mineral and organic solids) is the major water pollutant generated at construction sites. The action of water and wind transport and disperse these pollutants into streams and rivers. Traditional engineering practices consisting of erosion and sediment control measures and facilities can generally prevent large quantities of sediment from being transported. Other potential pollutants, however, may be carried in solution in runoff waters or by absorption to sediment which may pass through the erosion and sediment control devices. The potential pollutants common to construction activity include pesticides (insecticides, fungicides, and rodenticides), petrochemicals (oil, gasoline, and asphalts), construction chemicals (acids, soil additives, and concrete curing compounds), wastewater (aggregate wash water, herbicide wash water, concrete cooling water, coredrilling wastewater, and cleanup water from concrete mixers), garbage, cement, lime, sanitary wastes, and fertilizers.²

A sound stormwater management plan requires controlling both sediment transport and other potential pollutants at the construction site. An E&S Plan which includes Best Management Practices (BMP's) to control erosion and sedimentation must be developed as part of the permit application, as well as the development of a PPC Plan which addresses BMPs to control the discharge of the other types of potential pollutants.

This PPC Plan guidance draws information from practices adopted by industries in manufacturing, hazardous waste treatment and storage, and other industrial sectors. Where practical, the PPC Plan developer is referred to information already available in other documents (i.e. E&S Plan, Pollution Incidence Prevention "PIP" Plans, Spill Prevention, Control, and Counter measures "SPCC" Program) to minimize duplication. Information on equipment, typical duties of emergency response coordinators, and emergency equipment are presented in the appendices.

Since construction sites vary, the developer of the PPC Plan is recommended to approach data collection from a pragmatic standpoint so the risks are addressed in proportion to the complexity of the site, potential pollutants present, size of site, and other site-specific factors.

². U.S. EPA, Washington, D.C., "Processes, Procedures, and Methods to Control Pollution Resulting from all Construction Activity", October, 1973, PB-257 318.

PPC PLAN CONTENT AND FORMAT

General Instructions

1. Table A outlines the basic elements of a PPC Plan for construction activities. Each of these elements is further described in subsequent sections. Efforts have been made to ensure that the elements reflect construction site activities; however, if an element is not appropriate for a site, the person preparing the PPC Plan should provide a brief explanation why a particular PPC Plan element(s) would not be applicable.
2. A well developed PPC Plan is written simply and directly:

A PPC Plan composed of several volumes of winding narrative discussions and specifications may discourage the reader. Unnecessary diagrams, charts, and illustrations will also contribute to an ineffective plan. Simplicity, however, does not imply omission of necessary components of a complete PPC Plan.

Emergency response procedures should be easily accessed within the plan.

TABLE A. ELEMENTS AND FORMAT OF A PPC PLAN

- A. GENERAL DESCRIPTION OF THE CONSTRUCTION ACTIVITY
- B. EMERGENCY RESPONSE PROGRAM
- C. MATERIAL AND WASTE INVENTORY
- D. SPILL AND LEAK PREVENTION AND RESPONSE
- E. INSPECTION PROGRAM
- F. HOUSEKEEPING PROGRAM
- G. SECURITY
- H. EXTERNAL FACTORS

DESCRIPTION OF PPC PLAN ELEMENTS

A. GENERAL DESCRIPTION OF THE CONSTRUCTION ACTIVITY.*

Briefly describe the nature of the construction activity which occurs at the site. Include a general discussion of type and size of structure being constructed, erosion and sediment control structures, waste generation potential of the construction activities, and nature of raw materials and chemicals.

Include drawings (maximum 36" x 50") which show the following:

- (Scale 1" = 100' and contour interval of 2 feet recommended)
- general layout of the site
- property boundaries
- areas occupied by industrial activities not related to the construction activity within the site boundaries
- raw materials storage
- loading and unloading operations
- drains, pipes and channels leading away from potential leak or spill areas
- truck washing areas
- outfall pipes or channels that discharge into surface streams or drainage channels
- secure and open access areas
- entrance and exit routes to the site

B. EMERGENCY RESPONSE PROGRAM

In Emergency Response Program, describing the organizational structure, chain of command, emergency coordinators, emergency response authorities, communications, emergency equipment, and other emergency arrangements must be incorporated into the PPC Plan. Information for this section may be obtained from Health and Safety Plans, Pollution Incidence Prevention (PIP) Plans, Spill Prevention, Control, and Countermeasures (SPCC) Program, the Erosion and Sediment Control Plan, insurance regulations, and OSHA requirements. This information may then be included as appendices with appropriate cross references to minimize rewriting the entire PPC Plan.

The elements of a comprehensive Emergency Response Program are presented below.

- Describe the organizational structure, chain of command, emergency coordinators and contacts. Include descriptions of each individual's duties and responsibilities within the chain of command for implementation of the PPC Plan.

Each site must develop an organizational structure for developing, implementing, and maintaining the PPC Plan. The exact nature and make-up of this organizational structure will vary considerably, depending on the size and complexity of the site and the construction firm. It is recommended that this organizational structure be presented in the form of a hierarchical organizational chart identifying the role of each individual as it relates to activities associated with the PPC Plan.

For example, a large construction company may either establish a formal PPC committee, or it may assign this responsibility to an existing organization, such as a construction safety inspection team. This PPC team must be granted the responsibility and authority by management for developing, implementing and maintaining the PPC Plan.

The PPC organizational structure should have the overall responsibility for periodically reviewing and evaluating the PPC Plan and instituting appropriate changes at regular intervals. This team should also be responsible for review of changes in the construction activity that affect the PPC Plan's original scope. It is this team's responsibility that the changes in construction activity affecting the original PPC are incorporated in the form of addenda or revisions to the plan.

- Identify on the organizational chart, a list of emergency coordinators that must be contacted in the event of an emergency or spill.

Highlight each emergency coordinator's or all persons' qualified to act as emergency coordinator by name, position, office telephone extensions, beepers and home numbers (if applicable) that would be contacted in the event of an emergency or spill. The names and numbers should be updated to reflect any changes.

When practical, there must be at least one employee either on the installation's premises or on-call with the responsibility for coordinating all emergency response measures. The emergency coordinator must be thoroughly familiar with all aspects of the PPC Plan, all operations and activities, the location and characteristics of all materials handled, the location of all emergency response materials and records, and the lay-out of the site. This individual must have the authority to commit the resources necessary to carry out the PPC Plan.

- Describe the duties and responsibilities of the emergency coordinator specific to your site or activity in the event of an imminent or actual emergency.

During an emergency, the emergency coordinator should activate alarm systems, notify emergency response agencies, identify the problem, assess the health or environmental hazards, and take all reasonable measures to stabilize the situation. The emergency coordinator should also be responsible for follow-up activities after

the incident such as treating, storing, or disposing of residues and contaminated soil, decontamination and maintenance of emergency equipment, and submission of any reports. Appendix II describes some example duties and responsibilities of the emergency coordinator.

- Include on the organizational chart or as an attachment, a list of agencies and phone numbers that must be contacted in the event of an emergency or spill.

A list must be developed for notifying State, local, and Federal regulatory agencies of all spills. Such a list should include, as applicable: PA Department of Environmental Protection; PA Emergency Management Agency; County Health Department; PA Fish and Boat Commission; the National Response Center (U.S. EPA and U.S. Coast Guard); local police and fire departments; the local sewage treatment plant (for discharges to sewer systems); and downstream public water supplies; industrial water users, and recreation areas.

- Internal and External Communications and Alarm Systems

List and briefly describe all communications equipment that will be used to respond to spills or emergencies. Examples of communications or alarm systems are: hand-held two-way radios; CB radios; telephones; fire or police alarms; PA systems; beeper or voice pagers; etc. This requirement must be in accordance with applicable Department regulations.

- Employee Training Program

Summarize the training program given to employees which will enable them to understand the processes and materials with which they are working, the safety and health hazards, pollution prevention practices, and the procedures for responding properly and rapidly to spills.

At a minimum, the training program must be designed to ensure that personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment systems including, where applicable: procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment; key parameters for automatic cut-off systems; communications and alarm systems; response to fires and explosions; site evacuation procedures; and, shutdown of operations.

In addition, the employee training program should address other aspects of the PPC Plan, such as preventive maintenance, inspection and monitoring, housekeeping practices, etc.

- Emergency Equipment

Provide an up-to-date list of available emergency equipment. The list must include the location, physical description and a brief description of the intended use and capabilities of each item on the list.

- Describe the procedures for maintenance and decontamination (if necessary) of emergency equipment.

All installations should have equipment available to allow personnel to respond safely and quickly to emergency situations. Some examples of emergency equipment are portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment. See Appendix III for more examples.

All equipment must be tested and maintained as necessary to assure its proper operation in time of emergency. After an emergency, all equipment must be decontaminated, cleaned, and made fit for its intended use before normal operations resume.

- Evacuation Plan for Installation Personnel (if deemed necessary)

The PPC Plan must describe signals to be used to begin evacuation, the primary evacuation route, and alternate evacuation routes (in cases where primary routes could be blocked by releases of hazardous materials, wastes, gases, or fires). Periodic drills should be conducted to evaluate the effectiveness of the evacuation plan.

- Arrangements with Emergency Response Contractors

Provide a list of emergency response contractors, phone numbers, and the services they will provide. The services of nearby contractors should be investigated and arrangements made for the prompt performance of contractual services on short notice. Equipment suppliers should be contacted to determine the availability and means of delivery of equipment needed for removing pollution or hazards to the public health and safety.

- Provide a list with telephone numbers of local emergency response agencies.

Arrangements must be made, as appropriate, to inform local emergency response agencies, and hospitals, concerning the type of materials or wastes handled at the installation and the potential need for services. Arrangements should be made which will designate who will be the primary emergency response agency and who will provide support services during emergencies.

Efforts should be made to familiarize police, fire departments, emergency response teams, and the County Emergency Management Coordinator with the layout of the installation, the properties and dangers associated with the hazardous materials handled, places where personnel would normally be working, entrances to roads inside the facility, and possible evacuation routes.

C. MATERIAL AND WASTE INVENTORY

Identify and list by common chemical name and trade name, the locations, sources and quantities of chemicals used or stored at the site that have the potential of causing

environmental degradation or endangerment of public health and safety through accidental releases. This should include the contents and quantities of underground and aboveground storage tanks. Requests for confidentiality of this information will be handled in accordance with Department regulations.

Examples of pollutants that may be present at construction sites are:

- Pesticides (insecticides, rodenticides, and herbicides)
- Nutrients (fertilizers, sanitary wastes)
- Solid Waste (wood and paper, scrap metals, rubber and plastic pieces, masonry products, and other construction raw materials and debris)
- Construction Chemicals (paints, acids for cleaning, cleaning solvents, soil additives, concrete curing compounds, etc.)
- Petroleum Products (fuels, lubricants, tar, etc.)
- Other (concrete wash from mixers, acid or alkaline seepage, explosives, etc.)

Detailed descriptions of the above categories including their chemical makeup where applicable must be given along with quantities. Chemicals listed must be identified by their constituents given on the label.

This information should be used to evaluate the prevention, containment, mitigation, cleanup and disposal measures which would be used in the event of a spill, discharge, explosion, or fire. As new materials are added to the list, their pollution potential should be evaluated. Solid wastes including food wrappings, cigarette butts and packets, styrofoam cups and plates, and similar wastes should be disposed of appropriately.

For each hazardous chemical stored at the construction site, the material safety data sheet or similar information should clearly be cited in the PPC Plan.

D. SPILL AND LEAK PREVENTION AND RESPONSE

- Describe the sources and areas where potential leaks and spills may occur, the probable direction of flow of the spilled materials, and the pollution incident measures (Appendix I) specific to the source or area.
- Provide separate drawings, plot plans (or include in the general layout drawings), showing sources and quantities of materials and wastes, sources and areas where potential spills may occur, and pollution incident prevention measures (see Appendix I).

The PPC Plan should include a prediction of the direction of the flow of materials spilled as a result of equipment failure, accident, or human error. Particular care should be paid to evaluate the following: raw materials storage, materials handling, waste handling and storage and underground and aboveground storage tanks.

Liquid storage areas must have containment capacity sufficient to hold the volume of the largest single container or tank, plus a reasonable allowance for precipitation based on local weather conditions and site operations. Containment systems must be sufficiently impervious to contain spilled material or waste until it can be removed or treated. Tank or container materials must be compatible with the material or waste stored.

E. INSPECTION PROGRAM

- Describe the inspection program developed to assess the integrity of equipment, storage areas, and similar areas.

Such a program may include inspection of: pipes, pumps, valves, fittings, underground storage tanks, above ground storage tanks, material piles for fugitive dust, effectiveness of housekeeping, structures, foundations, excavations, and any other construction element capable of directly or indirectly leading to discharges of pollutants. Areas to be inspected include pesticide storage areas, other chemical storage, truck washing, transfer pipelines, tank farms, waste piles, and any other areas where releases may occur.

An inventory system should also be considered for keeping track of those materials having the greatest potential for causing problems due to leaks, spills, or mishandling. At a minimum, the frequency of inspection and monitoring must be in accordance with the applicable Department regulations and permits. Appendix I includes those additional inspection and monitoring examples.

F. HOUSEKEEPING PROGRAM

- Identify the areas and the type of housekeeping practices that should apply to reduce the possibility of accidental spills and safety hazardous to plant personnel. Examples of good housekeeping include the following: neat and orderly storage of chemicals; prompt removal of small spillage; regular refuse pickup and disposal; maintenance of dry, clean floors by use of brooms, vacuum cleaners, or cleaning machines; and, provisions for the storage of containers or drums to keep them from protruding into open walkways, pathways, or roads.

Dry chemicals should be swept or cleaned up to prevent possible washdown to drains and drainage ditches or wind blowing of the material to other areas of the plant. Small liquid accumulations on the ground or on a floor in a building should be cleaned up to prevent discharge or transport to other areas. See Appendix I for additional examples.

G. SECURITY

- Describe the security procedures employed at the installation to prevent accidental or intentional entry that could result in a violation of Departmental regulations, or injury to persons and damage to equipment.

H. EXTERNAL FACTORS

- Describe the possible effects of power outages, strikes, floods, snowstorms, etc., and the action to be taken to alleviate any resulting effects to public health and safety or the environment.

APPENDIX I

POLLUTION INCIDENT PREVENTION PRACTICES

Pollution incident prevention practices can be divided into the following four categories: prevention, containment, mitigation and ultimate disposal. The listings below provide specific examples of each category.

1. PREVENTION

Visual Observations of:

Storage facilities
Transfer pipelines

Loading and unloading areas
Waste handling and storage areas

Detailed Inspections of:

Pipes, pumps, valves, and fittings for leaks
Tanks for corrosion (internal or external)
Dry material or waste stockpiles for windblown potential
Tanks, supports or foundations for deterioration
Walls for stains
Drainage ditches and areas around old tanks for evidence of spilled materials
Primary or secondary containment for deterioration
Housekeeping practices
Shipping containers for damage
Material or waste conveyance systems for leaks, spills, or overflows
Integrity of storm water collection systems
Waste storage, treatment, or disposal sites for leaks, seeps, and overflows

Monitoring

Liquid-level detectors
Alarm systems
Pressure and temperature gauges
Analytical testing instrumentation
Pressure drop shut-off devices
Flow meters

Valve positioning indicators
Equipment operational lights
Excess-flow valves
Automatic runoff diversion devices
Routine sample collection
Redundant instrumentation

Nondestructive Testing

Hydrostatic pressure tests
Acoustical emission data

Records of tank wall thickness

Labeling

U.S. DOT or National Fire Protection Association's (NFPA) designation on tanks and pipelines
Color coding of tanks and pipelines
Warning signs
Vehicle Positioning

Physical barriers (e.g., wheel chocks) Designated loading and unloading areas
Underlying drains

Covering

Tarpaulins over outdoor dry waste or material stockpiles
Buildings or roofs over outside processes or stockpiles
Vegetation, rock, or synthetic covering on surface impoundments

Pneumatic and Vacuum Conveying

Loading and unloading by air pressure or vacuum
Safety relief valves
Dust Collectors
Air slide trucks and rail cars

Preventive Maintenance

Identification of equipment and systems Complete recordkeeping
Periodic inspections Adjustment, repair, or replacement of parts
Periodic testing

Good Housekeeping

Neat and orderly storage of chemicals
Prompt removal of small spillage
Regular garbage pickup and disposal
Maintenance of dry, clean floors by use of brooms, vacuum cleaners, etc.
Maintenance of proper spacing for pathways and walkways between containers and drums

Employee Training Programs

2. CONTAINMENT

Secondary Containment

Dikes	Drip pans
Curbs	Liners
Depressed areas	Double piping
Storage basins	Sewer collection systems
Sumps	

Flow Diversion

Trenches
Drains
Graded
Grating

Overflow structures
Sewers

Vapor Control

Water spray
Vapor space

Vacuum exhaust

Dust Control

Hoods
Cyclone collectors
Bag-type collectors

Filters
Negative-pressure systems
Water spraying

Sealing

Foamed plastic compounds used for plugging leaks in tanks

3. MITIGATION

Physical Clean-up

Brooms Shovels Plows

Mechanical Clean-up

Vacuum systems Pumps Pump/bag system

Chemical Clean-up

Sorbents
Activated carbon
Polyurethane and polyolefin spheres, beads, and foam belts
Amorphous silicate glass foam
Clay
Sawdust

Gelling agents

Polyelectrolytes Polyacrylonitrile
Polyacrylamide Polyethylene oxide
Butylstyrene copolymers

Foams

Rockwood alcohol
Protein
Fluoroprotein
-based foam

Aqueous film-forming foam
Polar liquid foam
Surfactant

Volatilization

Distillation
Stripping
Evaporation
Carbon Absorption
Coagulation/precipitation

Neutralization
Ion exchange
Chemical oxidation
Biological treatment

4. ULTIMATE DISPOSITION

Thermal oxidation
Land disposal
Recycle

Recover
Reuse
Detoxification

APPENDIX II

EXAMPLES OF AN EMERGENCY COORDINATOR'S DUTIES AND RESPONSIBILITIES

Whenever there is an imminent or actual emergency situation, the emergency coordinator must immediately:

1. Activate facility alarms or communications systems, where applicable, to notify facility personnel; and
2. Notify local emergency response agencies including the Department.

Whenever there is an emission or discharge, fire, or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and areal extent of emitted or discharged materials. This is done by observation or review of records and, if necessary, by chemical analysis.

Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the emission or discharge, fire, or explosion. This assessment must consider both direct and indirect effects of the emission, discharge, fire, or explosion.

If the emergency coordinator determines that the installation had had an emission, discharge, fire, or explosion which would threaten human health or the environment, he must immediately notify the applicable local authorities and indicate if evacuation of local areas may be advisable; and, immediately notify the Department by telephone at (800) 541-2050 and the National Response Center at (800) 424-8802 and report the following:

1. Name of the person reporting the incident.
2. Name and location of the installation.
3. Phone number where the person reporting the spill can be reached.
4. Date, time, and location of the incident.
5. A brief description of the incident, nature of the materials or wastes involved, extent of any injuries, and possible hazards to human health or the environment.
6. The extent of contamination of land, water, or air, if known.

During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fire, explosion, emission, or discharge do not occur, reoccur, or spread to other materials or wastes at the installation. These measures shall include, where applicable, stopping manufacturing processes and operations, collecting and containing released materials or wastes, and removing or isolating containers.

If the installation stops operations in response to a fire, explosion, emission, or discharge, the emergency coordinator must ensure that adequate monitoring is conducted for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

Immediately after an emergency, the emergency coordinator with Departmental approval must provide for treating, storing, or disposing of residues, contaminated soil, etc., from an emission, discharge, fire, or explosion at the installation.

The emergency coordinator must insure that in the affected areas of the installation, no material or waste incompatible with the emitted or discharged residues is processed, stored, treated, or disposed of until cleanup procedures are completed; and all emergency equipment listed in the PPC Plan is cleaned and fit for its intended use before operations are resumed.

Within 15 days after the incident, the installation must submit a written report on the incident to the Department. The report must include the following:

1. Name, address and telephone number of the individual filing the report.
2. Name, address and telephone of the installation.
3. Date, time and location of the incident.
4. A brief description of the circumstances causing the incident.
5. Description and estimated quantity by weight or volume of materials or wastes involved.
6. An assessment of any contamination of land, water or air that has occurred due to the incident.
7. Estimated quantity and disposition of recovered materials or wastes that resulted from the incident, and
8. A description of what actions the installation intends to take to prevent a similar occurrence in the future.

APPENDIX III

EXAMPLES OF EMERGENCY EQUIPMENT

Special equipment is often required and may be needed quickly in an emergency. Examples include the following:

Aerial ladder	Fuel supply
Absorbent materials	Geiger counter
Accident investigation kit	Generator trailer
Air compressor	Heaters, portable
Air supply, for breathing equipment	Helicopter
Backhoe	Hydraulic spreader jacks
Basket stretchers	Inhalator
Bulldozer	Jack hammer
Bullhorn camera/photo equipment	Ladder truck
Cellar pump	Lighting equipment, portable
Chain hoist	Medical supplies
Chemical neutralizers	Metal saw (power)
Crane cutters (power)	Radio
Decontamination equipment with	Resuscitator
a clean water supply (70-80-)	Sand supply
Ejector - smoke	Self-contained breathing apparatus (SCBA)
Elevated platform truck	Self-contained underwater breathing apparatus (SCUBA)
Fans	Submersible pump
Firefighting equipment	Tank truck
Foam concentrate supply	Tool box
Foam generators	Welding/cutting equipment
Forklift	Water pump