

# **North Dakota Water and Pollution Control Conference 2014 Stormwater Workshop**

## **Stormwater Compliance at Landfills With Operator Perspective**

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# Agenda

- Introductions
- Industrial Activity General Permit NDR05-0000
  - Background
  - Permitting
  - Authorized and Unauthorized Discharges
- Compliance at Landfills
  - SWPPP and BMPs
  - Common Issues
- Operator Perspective
  - City of Dickinson Sanitary Landfill
  - Examples of Compliance

# Introductions

- Cindy Robb, CHMM
  - Environmental Compliance Manager
  - Wenck Associates, Inc.
  - Background
- Aaron Praus
  - Sanitation Manager
  - City of Dickinson
  - Background

# Stormwater-Background

## Clean Water Act (CWA)

- Stormwater is any precipitation (rain, snow, hail, sleet, etc.)
- Stormwater is regulated by the Clean Water Act because it discharges directly to rivers, lakes and streams without any treatment.
- Typical pollutants carried by stormwater include chemicals, bacteria, sediment and other debris from roads, parking lots, lawns, etc... that can severely degrade water quality.

# Stormwater-Background

## Clean Water Act (CWA) continued

- The Clean Water Act aims to **prevent** pollutants from washing into rivers, lakes and streams through best management practices.
- Prevention is accomplished by minimizing contact of stormwater with materials that may result in polluted runoff.
- Most industrial facilities require a stormwater permit through NDDH or the EPA (Indian Reservation)

# Stormwater-Permitting

- NDR05-0000 Industrial General Permit requires the following:
  - Development of a Stormwater Pollution Prevention Plan (SWPPP) that delineates facility specific potential pollutants and best management practices;
  - Spill prevention and response procedures;
  - Employee training;
  - Visual facility inspections;
  - Stormwater monitoring (as needed).
- Even without stormwater permitting, facilities should still implement best management practices to minimize pollutants from entering stormwater.

# Authorized Non-Stormwater Discharges

- Fire-fighting activities;
- Fire hydrant flushing;
- Potable water line flushing;
- Infrequent building and equipment wash down **without** detergents (no spills or leaks of potential pollutants such as fertilizers, salts, or hazardous materials);
- Uncontaminated foundation or footing drains;
- Uncontaminated condensate from ACs & compressors;
- Landscape watering.

# Unauthorized Discharges

- Spills of any substance that may cause water pollution.
- **Commercial equipment / vehicle cleaning wastewater.**
- Domestic and industrial wastewater, such as leachate from landfill operations.
- Piping and drainage systems for process wastewater and **floor drains from process areas must be separated from the storm drainage system.**
- Boiler or compressor blowdown.
- Stormwater associated with construction activities.

# SWPPP-Landfills

## Best Management Practices

- Implement proper fueling transfer procedures
  - Use reputable vendors
  - Supervise transfers / inspect transfer equipment
  - Ensure adequate volume / check level gauges
  - Clean up incidental drips/releases
- Properly store bulk diesel
  - Inspect tanks and equipment
  - Maintain secondary containment
- Perform vehicle maintenance
  - Only if needed
  - Only during dry weather/collect all fluids and debris

# SWPPP-Landfills

## Best Management Practices

- Maintain vehicle parking areas
  - Inspect for signs of staining/spills
  - Promptly clean-up oils and residuals
- Properly store general solid waste
  - Use non-leaking dumpsters
  - Keep dumpsters covered
- Prevent sediment runoff and erosion
  - Maintain vegetation over non-traveled areas of site
  - Monitor roads for signs of tracking

# SWPPP-Landfills

## Best Management Practices

- Prevent material tracking from building drop-off
  - Inspect entrances periodically
  - Clean-up materials promptly
- Maintain stormwater ponds and basins
  - Remove overgrowth vegetation
  - Ensure safe access for inspection and sampling
  - Repair structures as needed
  - Monitor for signs of erosion

# SWPPP-Landfills

## Best Management Practices

- Maintain Spill Response Team and equipment
  - Ensure spill kits stocked at vehicle fueling area and/or office
  - Keep shovels accessible
  - Keep adequate sand on-site



# SWPPP-Landfills

## Spills and Releases

- Review any past incidents
- Response procedures
  - Ensure your safety
  - Upon discovering a spill, immediately notify the Operator
  - If there is danger to human health or public safety call 911
  - Attempt to stop the source of the spill
  - Attempt to contain the spill-critical control points using spill response equipment and disposable supplies
  - Initiate clean-up (disposal containers, contractor assistance, etc.)
  - Complete a Spill Report Form

# SWPPP-Landfills

- Complete annual training
- Perform semi-annual site inspections
  - January-June and July-December intervals
  - One inspection within 48-hours of a rainfall or snowmelt event resulting in a stormwater discharge
  - Inspector familiar with permit and site
  - Amend SWPPP as needed based on inspection findings
  - Inspections are not required to be submitted to NDDH unless requested

# SWPPP-Landfills

- Perform annual stormwater monitoring
  - Required parameters for sampling: pH, TSS, COD and Lead
  - Collect samples from all discharges unless one representative sample is adequate for site
- Complete an annual Discharge Monitoring Report (DMR)
  - Summarize monitoring results on NDDH DMR form
  - Cover period from January 1 to December 31, and be submitted to NDDH by January 31

\*\*If stormwater is being discharged to a municipal treatment system (typically via the leachate system), than stormwater sampling is not required

# Common Issues at Landfills

- Stormwater mixing with leachate
  - Construct berms and swales to force separation
  - Monitor continuously
- BMP failures and lack of maintenance
  - Required to design to 25-year 24-hour storm event
  - Best to design to 100-year 24-hour storm event to prevent failures from large storm events.
- Erosion
  - Working Face
  - Final Cover
  - Side Slopes

# Common Issues at Landfills

- Berm Failure
  - Mixing of stormwater with leachate



# Common Issues at Landfills

- BMP failures
  - Just a berm failure, oh yeah, and a TSS failure



# Common Issues at Landfills

- BMP failures
  - Undermining at outlet is no big deal



# Common Issues at Landfills

- BMP lack of maintenance
  - Just cleaned?



# Common Issues at Landfills

- BMP lack of maintenance
  - Good neighbors?



# Common Issues at Landfills

- BMP lack of maintenance
  - The public is always clean



# Common Issues at Landfills

- BMP maintenance
  - Electronics/white goods designated areas



# Common Issues at Landfills

- BMP lack of maintenance
  - I'm not sure what made that stain



# Common Issues at Landfills

- BMP lack of maintenance
  - The absorbent keeps the area clean



# Common Issues at Landfills

- BMP maintenance
  - Designated spill equipment and location



# Common Issues at Landfills

- BMP lack of maintenance
  - I DO inspect my tank every month



# Common Issues at Landfills

- BMP maintenance
  - Nice labeling and housekeeping



# Common Issues at Landfills

- BMP lack of maintenance
  - Containment. Extra storage capacity. Same thing.



# Common Issues at Landfills

- BMP maintenance
  - Oil and chemical storage...not so dirty.



# Common Issues at Landfills

- BMP lack of maintenance
  - I'll fix that later.



# Common Issues at Landfills

- Erosion
  - Stockpile control?



# Common Issues at Landfills

- Erosion
  - It's only working face erosion



# Common Issues at Landfills

- Erosion
  - I swear I had final cover



# Common Issues at Landfills

- Erosion
  - Corrected Erosion



# City of Dickinson Sanitary Landfill



# City of Dickinson Sanitary Landfill

- Stark County, Dickinson, North Dakota
  - 140 acres of publicly-owned land for waste handling
- City of Dickinson owns and operates
  - Solid Waste Landfill
  - Baler Facility/Transfer Station
  - Emergency Inert Landfill
- Solid Waste Landfill
  - 82-acre parcel
  - Current site since 1990
  - NDDH Permit SW-315
  - Previously a coal mine, Husky Mine pit

# City of Dickinson Sanitary Landfill

- Current Operations
  - Municipal Solid Waste (MSW)
  - Three lined cells since 2002
  - Permitted for two additional lined cells
  - No areas have officially received final covered
- Additional Site Operations
  - Inert waste
  - Yard waste composting
  - Treatment of contaminated soils
  - Tires and white goods hauled away to recycling facilities
  - Tree/wood debris processed into woodchips

# City of Dickinson Sanitary Landfill

- Site Conditions
  - Drainage area approximately 75 acres
  - Active landfill 38 acres
  - Nearest surface water body is the Heart River
- Stormwater
  - Controlled on-site
  - Drainage swales, downslope structures, stilling basins, perimeter ditches, and sedimentation ponds
  - Swales are 4:1 slopes and are sloped at 2% to associated downslope structures
  - Stormwater pumped from retention ponds to city WWTP via the leachate forcemain



# Operator Perspective

- Comprehensive site inspections are done semi-annually, however, operators visually inspect the areas daily
- Inspections completed by the Storm Water Pollution Prevention Team
- Inspect stormwater drainage areas for pollutants
- Check regularly if new exposed materials have been added
- Inspect during the runoff for discolored or other visibly contaminated.
- Determine if BMPs are installed and functioning properly.
- Visually inspect equipment for leakage
- Record the date, time, name of inspector, inspection findings and deficiencies, and conditions
- Recommendation for corrective action(s)
- Maintain inspection records and summary reports for a 3yr period

# Stormwater/Ground Water Monitoring

- 9 ground water monitoring wells
- 4 sedimentation ponds
- 1 leachate collection pond
- Semi-annual sampling procedures
- Sampling completed before discharge



# Cell Construction/Liner Design

- Bottom consists of 2ft. compacted clay and HDPE synthetic liner
- Sidewalls consists of compacted clay with the proper density
- Final cover consists of 3ft. compacted clay and cover material to prevent filtration of storm water



# Overview of Landfill



# Contact Information

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# Questions

