# U.S. EPA Site Visit Report
# Coal Combustion Waste Minefill Management Practices
# - New York -

Draft Final
October 2, 2002

DISCLAIMER:
This document was prepared by SAIC for the U.S. Environmental Protection Agency (EPA) Office of Solid Waste. This draft is part of an information collection effort. This document has been reviewed by EPA and the State. The mention of company or product names is not to be considered an endorsement by the U.S. Government or by EPA.

New York - July 10, 2002

## OBJECTIVE

From September 2001 to October 2002, EPA conducted visits to selected states to collect information on coal combustion waste (CCW) minefill management practices. On July 10, 2002, EPA staff conducted an information collection visit to New York. The purpose of this visit was to review the implementation of the State of New York's regulatory program for mine placement of coal combustion waste. The visit consisted of two parts: meetings with New York State regulators, and a visit to a sand and gravel quarry site where CCW is currently being placed. At this site, the CCW is mixed with portland cement to form flowable fill before placement into the reclamation site. The CCW Minefill Management Practices Discussion Guide developed by EPA was used as a guide during the visit. A completed version of the Discussion Guide is attached to this report.

## PLACES AND DATES

Avon, NY
NY State Department of Environmental
Conservation (NYSDEC) Region 8 Office July 10, 2002

Clarendon, NY
Hansen Aggregates GLSC, Inc., Clarendon Quarry July 10, 2002

## SUMMARY OF MEETINGS WITH NEW YORK STATE REGULATORS

The information collection meeting was conducted on July 10, 2002, at the New York State Department of Environmental Conservation (NYSDEC) Region 8 Office in Avon, New York. In attendance at the meeting were:

- Dennis Ruddy, U.S. EPA
- Steven Army, NYSDEC Avon Office/Division of Mineral Resources
- David Bimber, NYSDEC Avon Office/Division of Environmental Permits
- Daniel David, NYSDEC Avon Office/Division of Solid & Hazardous Materials
- Gary Maslanka, NYSDEC Avon Office/Division of Solid & Hazardous Materials
- Joseph Moskiewicz, NYSDEC Syracuse Office/Division of Mineral Resources
- Steve Potter, NYSDEC Cental Office/Division of Mineral Resources
- Sara Dennis, SAIC

In New York State, CCW is regulated jointly by the Division of Solid and Hazardous Waste and the Division of Mineral Resources. Three types of permits are applicable to the use and disposal of CCW:

- Disposal permits for placement of CCW into landfills;
- Beneficial use permits for uses of CCW listed in 6 NYCRR 360-1.15(b)(14-16);
- RD&D permits for innovative technologies or processes.

Mine placement of CCW in New York is currently occurring at only one site, under an RD&D permit.

## SUMMARY OF MINE SITE VISIT

On July 10, 2002, EPA staff visited a sand and gravel quarry utilizing placement of CCW in flowable fill in Clarendon, New York. In attendance at the meeting were:

- Dennis Ruddy, U.S. EPA
- Steven Army, NYSDEC Avon Office/Division of Mineral Resources
- Gary Maslanka, NYSDEC Avon Office/Division of Solid & Hazardous Materials
- Joseph Moskiewicz, NYSDEC Syracuse Office/Division of Mineral Resources
- Steve Potter, NYSDEC Cental Office/Division of Mineral Resources
- Sara Dennis, SAIC

The mine site visited was the Hansen Aggregates GLSC, Inc., Clarendon Quarry. This is a dolomite quarry using CCW to reclaim a former mine on the site. The Clarendon Quarry receives fly ash from a number of different sources in the northeast. Its two largest suppliers are an electric utility in Niagara Falls, New York, and Eastman Kodak, in Rochester, New York. The fly ash is combined with well water and portland cement (~2%) manufactured at the site to create a flowable fill. The fill material is then piped to the empty quarry. The facility has placed an average of 117,176 tons of flowable fill per year into the quarry over the last four years.

Conditioned fly ash is trucked onto the site, where it is placed into a walled dump area. Sprinklers are located along the top of the walls, with the sprinklers operating at staggered intervals, so that the ash remains moist. From the dump area backhoes carry ash to a chute, from which ash is conveyed into the mixing building. Inside the building, the ash is mixed with portland cement and site well water to form a mixture that contains at least two percent cement. From the mixing tank, the flowable fill is pumped through a pipe to the reclamation site.

The flowable fill is being placed into three separate fill areas (or cells). At the request of the Town of Clarendon, only one of the areas will be filled to the approximate original contour. The anticipated land use for the area is as a sports and activity complex. One of the fill areas will be filled to a level and grade below the original contour, to create baseball fields which can be seen from the road. Another cell will be filled to a level and grade above the original contour, to create a hill for sledding or soap box car races. The entire fill area will be deeded to the town once reclamation is complete. It is expected that completion of reclamation will occur in another ten to eleven years.

There was no visible dust from the site during the visit. However, there have been complaints from residents in the vicinity of the quarry, and NYSDEC has issued citations for dust violations in the past. The Town of Clarendon is currently attempting to get the facility to construct a building to house the walled dump area. Once the flowable fill has been placed in the reclaimed quarry, dust is not a concern, unless the surface of the fill is disturbed.

# CCW MINEFILL MANAGEMENT PRACTICES DISCUSSION GUIDE*

## Outline

**I. General**
***Regulating agencies, program structure***

**II. Planning/Permitting**
***Permit requirements, type/source of CCW, number of permits, quantity of waste, acid/base balances, reclamation plans, operational plans, closure/post-closure plans, future uses***

**III. Waste Characterization**
***Timing (before/during placement), testing methods, parameters, performance standards/waste characterization limits***

**IV. Site Characterization**
***Types of data, hydrology, criteria for acceptability, liners***

**V. Risk Assessment**
***Formal assessment/modeling, methods/criteria***

**VI. Ground Water Monitoring**
***Monitoring system design, timing (during placement/post-closure), frequency, location, parameters, performance standards/enforceable limits***

**VII. Surface Water Monitoring**
***Monitoring system design, timing (during placement/post-closure), frequency, location, parameters, performance standards/enforceable limits***

**VIII. Placement Practices**
***Appropriate practices for: underground mines, surface mines, active mines, closed mines, proximity to water table, grouting, soil conditioning, mine sealing, subsidence control, spoil encapsulation***

**IX. Operational Requirements/Design Requirements**
***Dust controls, erosion/flooding controls, runoff controls, leachate collection, re-vegetation, access controls, post-closure maintenance***

**X. Corrective Action**
***Circumstances/triggers for action, action measures, existing damage cases***

**XI. Financial Assurance**
***Mechanisms, liability, bond release***

**XII. Reporting**
***Inspection frequency (pre-, during, and post-placement), monitoring data review, compliance evaluation***

**XIII. Public Participation**
***Availability of data (pre-, during, and post-placement), compliance participation***

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* This document was prepared by the U.S. Environmental Protection Agency (EPA). It is being used to guide discussions with State and Tribal mining regulatory authorities on coal combustion waste (CCW) minefill management practices. This list of discussion items is part of an information collection effort. It is not a proposed model for CCW minefill regulation.

**CCW MINEFILL MANAGEMENT PRACTICES DISCUSSION GUIDE**
July 10, 2002 – New York

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|---|---|
| **Interviewee Names:** | Gary Maslanka, Div of Solid & Haz. Waste, Avon Office<br>Joseph Moskiewicz, Div of Mineral Resources, Syracuse Office<br>David Bimber, Div of Environmental Permits, Avon Office<br>Daniel David, Div of Solid & Haz Waste, Avon Office<br>Steven Army, Div of Mineral Resources, Avon Office<br>Steve Potter, Div of Mineral Resources, Central Office<br>Richard Clarkson, Div of Solid & Haz Waste, Albany Office |
| **Interviewee Agency:** | New York State Department of Environmental Conservation |
| **Interview Date:** | July 10, 2002 |

## I General

1. Is there a distinction between disposal and beneficial use? **Yes**.
   1.1 How is the distinction made (e.g., waste quantity, placement type)? **New York has a regulatory distinction, in 6 NYCRR 360 1.15(d)(2)(i). The beneficial uses listed in the regulation are those for which prior beneficial use determinations (BUDs) have been approved. For beneficial uses not listed in the regulations, the distinction is made on a case-by-case basis.**

2. Under what program(s) does the state regulate mine placement (e.g., state SMCRA implementing regulations, state solid waste program)? **Joint programs of the New York Department of Environmental Conservation (NYSDEC) Division of Solid and Hazardous Waste and Division of Mineral Resources**.

3. Are there differing requirements/policies applicable to different types of CCW (e.g., fly ash vs. FGD wastes)? **CCW placement is only occurring at one mine site in New York, under an RD&D permit, which uses fly ash exclusively.**

4. Are there differing requirements/policies applicable for different types of placement? **Requirements/policies are determined on a case-by-case basis; the flowable fill project currently permitted is the only project so far.**

5. Are there differing requirements/policies applicable for different kinds of mines (e.g., coal vs. non-coal mines such as quarries)? **This would be determined on a case-by-case basis. (Note, however, than New York does not have any coal mines.)**

## II Planning/Permitting

1. Are mine facilities required to obtain permits for CCW placement? **Reclamation is part of the original mining permit. If CCW placement was not part of the original reclamation plan, the facility needs to get a permit amendment.**

2. Who issues the appropriate permits? **The only currently permitted site is operating under an RD&D permit from the NYSDEC Division of Solid and Hazardous Waste, and a mining permit from the NYSDEC Division of Mineral Resources. It is anticipated that any future projects would be required to obtain permits from both divisions.**

3. Do the permits contain project-specific conditions or requirements? **Yes. New York has no pre-established permit conditions. All requirements are site-specific in the permit.**

4. Are there environmental justice considerations in the permitting process? **This has not been an issue. NYSDEC's environmental justice program is under development and will include virtually all Part 360 permits.**

5. Is the operator required to identify:
   - 5.1 The type of CCW to be minefilled? **Yes. The facility is only permitted to use fly ash and foundry sand.**
   - 5.2 The source of the CCW? **Yes.**
   - 5.3 The quantity of CCW to be minefilled? **Yes.**

6. How many permits have been authorized in the State for CCW mine placement? **There is only one permitted mine placement site, which operates under an RD&D permit.**

7. What is the total quantity of CCW minefilled in the State per year?
   **1998: 70,669.76 tons;**
   **1999: 132,462.06 tons;**
   **2000: 86, 614.3 tons;**
   **2001: 178,957.96 tons;**
   **2002: 124,299.76 tons (as of June 30)**
   **(All placement is at the single permitted site).**

8. Are operators required to address acid/base balances prior to placement? **Not applicable to the types of mines found in New York.**
   - 8.1 What procedures are used to conduct acid/base balances?
     - 8.1.1 What are the shortcomings of these procedures, if any?
     - 8.1.2 What is the long-term reliability of these procedures?

9. Is a reclamation plan required? **Yes. Under 6 NYCRR 422.3, a reclamation plan is required as part of the original mining permit application.**
   9.1 Is the plan required to specifically address the use of CCW? **Yes.**
   9.2 What must the plan include? **The plan must include the applicant's proposed land-use objective, the proposed method of reclaiming the affected land, and a schedule for reclaiming the affected land. The proposed reclamation plan should include specifics relative to: the disposition of all refuse, spoil, stockpiles and personal property; the treatment of haulageways; drainage and water control; water impoundments; grading and revegetation.**
   9.3 What are the standards for reclamation (i.e., how is the end-point of reclamation defined)? **This is determined on a case-by-case basis. Generally the site must achieve "preparation of the affected land for a future productive use." For the existing site, the end-points are those in the R&D permit. The site must meet grade requirements, and compressive strength requirements. NYSDEC has a minimum of two years after reclamation to release the bond.**

10. Is an operational plan required? **As part of an RD&D permit application, the facility must describe the proposed activity in detail, and describe how they intend to provide for the receipt and disposal of waste and protect human health and the environment.**
   10.1 Is the plan required to specifically address the use of CCW? **Yes.**
   10.2 What must the plan include? **See above.**

11. Is a closure plan and/or post-closure plan required? **Yes**. **Closure and post-closure requirements are contained within the permit conditions for the single existing site.**
   11.1 Is the plan required to specifically address the use of CCW? **Yes.**
   11.2 What must the plan include? **For the single existing site, closure requirements include the following: final closure and capping of this project must occur within 90 days of the earliest of the dates listed within the permit, except that a vegetative cover must be established within 180 days; and capping shall consist of 18 inches of compacted soils overlain by 6 inches of topsoil, graded to a minimum slope of 2%, followed by the establishment of an appropriate cover crop. This cap shall be monitored and maintained for a minimum of 30 years following closure.**

12. Are there procedures and criteria for determining what future uses are acceptable following closure? **The future use of the site is stated as part of the reclamation plan.**
   12.1 How is the public involved in this determination? **RD&D permits do not require public participation. In general, in New York, public involvement occurs prior to issuance of the permit.**

12.2 If use is restricted, what protects against inappropriate uses? **This is determined on a case-by-case basis.**

**III Waste Characterization**

1. Is characterization of the CCW conducted prior to placement? **Yes**.
   - 1.1 What analytes are measured? **23 Target Compound List metals (aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc).**
   - 1.2 What is the testing method used? **Synthetic Precipitation Leaching Procedure (SPLP) and total metals**.
   - 1.3 Are there numerical waste acceptance/rejection criteria? **The State has not assigned numerical acceptance criteria for the single existing site. However, the facility itself has established internal criteria.**
     - 1.3.1 If so, what are they? **The site has developed a range of acceptable values, and will only accept wastes with test values within that range, to create a more homogeneous fill material.**
     - 1.3.2 If not, how are waste characteristics considered in pre-placement and planning? **Not applicable.**

2. Is ongoing waste characterization required during placement? **Yes.**
   - 2.1 How do the analytes, testing methods, or waste acceptance/rejection criteria differ from those used prior to placement? **The facility must meet a compressive strength test based on a concrete strength test. (The facility has not met the test on occasion, but NYSDEC has not held them to it, because the test is not designed for flowable fill.)**
   - 2.2 What is the required frequency of characterization? **Quarterly.**
   - 2.3 How often is the waste characterization data reviewed by the appropriate regulatory agency? **Quarterly, upon submission of results by the facility.**

3. What is the basis for any numerical acceptance/rejection criteria? **See response to Section III, Question 1.3.1, above.**

**IV Site Characterization**

1. Is characterization of the site required prior to placement? **The site is characterized as part of the original mining permit.**
   - 1.1 What factors are examined in characterizing a site? **The site characterization must include the geographic location of the mine; the location and description of topographic, cultural, and land-use features (including, but not limited to, landforms, drainage, bodies of water, roads, and buildings) within and adjacent to the affected land; and a description of the existing**

**condition of the ground surface at the mine including areas already mined or disturbed by mining activity.**

1.2 What are the criteria for accepting/rejecting a site? **This is determined on a case-by-case basis. We anticipate that future applications and/or any future rulemaking in Part 360 will include specific rigorous site selection criteria.**

2. Is consideration of the site hydrology (e.g., a probable hydrologic consequences determination under SMCRA) required? **Yes, as part of the original mining permit application.**
   - 2.1 Does this consideration specifically address the use of CCW? **This is determined on a case-by-case basis.**
   - 2.2 What are the hydrologic criteria for site acceptance/rejection? **Placement above the water table.**
   - 2.3 Does consideration of site hydrology specifically address both ground water and surface water? **The consideration of site hydrology for the only permitted site used pre-existing monitoring locations, which included both ground-water monitoring wells, and monitoring of on-site retention ponds.**
   - 2.4 What time period does PHC determination or other consideration of site hydrology address? **The duration of the project.**

3. Is background ground-water monitoring data required prior to placement? **Determined on a case-by-case basis. A one-time measurement was done for the single existing facility.**
   - 3.1 What analytes are measured? **Determined on a case-by-case basis.**
   - 3.2 How are the sampling locations selected? **Determined on a case-by-case basis.**
   - 3.3 How much data is required before placement? **Determined on a case-by-case basis. For the one site permitted, at least one round was conducted prior to placement.**

4. Is background surface water monitoring data required prior to placement? **Determined on a case-by-case basis.**
   - 4.1 What analytes are measured? **Determined on a case-by-case basis.**
   - 4.2 How are the sampling locations selected? **Determined on a case-by-case basis.**
   - 4.3 How much data is required before placement? **Determined on a case-by-case basis.**

5. Is the use of liners considered in site characterization? **Yes.**
   - 5.1 If a site is determined to be unacceptable for CCW placement, can it be made acceptable through the use of liners? **New York has no existing program, but this would be determined on a case-by-case basis.**

6. Are there any restrictions on the type of sites that can accept CCW? **Determined on a case-by-case basis. We anticipate that future applications and/or any future rulemaking in Part 360 will include specific rigorous site selection criteria.**

**V Risk Assessment**

1. Is a formal risk assessment performed? **An evaluation is performed, but not a formal risk assessment.**
   - 1.1 Is it based on site-specific, regional or other (please specify) data? **Site-specific.**
   - 1.2 Describe the steps taken in this assessment. **Geology, hydrology, potential receptors, compliance methods.**
   - 1.3 Who conducts the assessment? **NYSDEC**

2. Are specific air, surface water, and ground-water models, equations, etc., used to assess risk or impacts? **New York has no formal risk assessment process.**
   - 2.1 What models are used?
   - 2.2 What is the State's experience with these models (e.g., ease of use, value of results)?

3. How are the risk assessment results expressed? {e.g., monetization of potential damages, calculated incremental health risks (illness, deaths), negative risk (i.e., benefits outweigh negative impacts), rationalization (e.g., aquifer is not potable anyway), comparative (current/future use of the resource)}. **New York has no formal risk assessment process.**

4. How are the results interpreted to determine the level and acceptability of impacts to receptors? **New York has no formal risk assessment process.**
   - 4.1 Who is responsible for interpreting the results?

5. If no risk assessment is completed, is there a presumption that placement is acceptable if certain criteria are met? (e.g., leachate characteristics, distance to ground water, liner placement, historical experience of the regulatory authority)? **Yes.**
   - 5.1 Please list the pass/fail criteria below. **Placement must not cause the site to violate State ground-water standards. Other criteria will likely be addressed in rulemaking.**

**VI Ground-Water Monitoring**

1. Is a ground-water sampling and analysis plan required? **Yes.**

2. Is ground-water monitoring required during placement? **Yes.**
   - 2.1 What analytes are measured? **Metals and routine field parameters, which are listed at Part 360-2(d)(6): static water level, specific conductance, temperature, floaters or sinkers, pH, Eh, dissolved oxygen, field**

**observations, turbidity, total Kjeldahl nitrogen, ammonia, nitrate, chemical oxygen demand, biochemical oxygen demand (BOD5), total organic carbon, total dissolved solids, sulfate, alkalinity, phenols, chloride, bromide, total hardness as CaCO3, cadmium, calcium, iron, lead, magnesium, manganese, potassium, and sodium.**

2.2 How are the number of wells, well locations, and screening zones selected? **Determined on a case-by-case basis. For the one permitted site, existing monitoring locations were used.**

2.3 What is the frequency of monitoring? **Determined on a case-by-case basis. For the one permitted site, monitoring is conducted on a quarterly basis.**

3. Is post-closure ground-water monitoring required? **Not specified in the current permit, the way the permit is written. However, until Hanson petitions to decrease the frequency of monitoring, current requirements will apply. Generally, ash landfills are required to submit five years of post-closure monitoring data before the NYSDEC will make a determination.**

3.1 If so, how does it differ from ground-water monitoring conducted during placement (analytes monitored, frequency, etc.)? **Under the current permit, it does not.**

4. Can ground-water monitoring be discontinued? **Yes, after closure.**

4.1 What are the criteria for discontinuing ground-water monitoring? **Determined on a case-by-case basis. At a minimum, the facility must meet post-closure requirements.**

5. How is ground-water monitoring designed to specifically detect/distinguish the effects of CCW placement? **In wells down-gradient and in proximity of disturbed area.**

6. How are large expanses dealt with? **Not applicable to mining sites in New York. The disturbed area at quarry sites generally extends to the property boundary.**

7. How is existing ground-water contamination dealt with as part of the monitoring program? **Determined on a case-by-case basis. If monitoring will detect changes, built-in statistical triggers would be used to determine effects of placement.**

8. What water quality standards/criteria must be met? **New York State ground-water quality regulations (6 NYCRR 703).**

9. Are alternative monitoring methods allowed? **No, but alternative analytes may be.**

9.1 What alternative monitoring methods are allowed? **Not applicable.**

**VII Surface Water Monitoring**

1. Is a surface water sampling and analysis plan required? **Yes.**

2. Is surface water monitoring required during placement? **Yes**
   - 2.1 What analytes are measured? **Metals and routine field parameters.**
   - 2.2 How are sampling locations selected? **Determined on a case-by-case basis. For the one permitted site, existing monitoring locations were used.**
   - 2.3 What is the frequency of monitoring? **Determined on a case-by-case basis. For the one permitted site, monitoring is conducted on a quarterly basis.**

3. Is post-closure surface water monitoring required? **Not specified in the current permit, the way the permit is written. However, until Hanson petitions to decrease the frequency of monitoring, current requirements will apply. Generally, ash landfills are required to submit five years of post-closure monitoring data before the NYSDEC will make a determination.**
   - 3.1 How does it differ from surface water monitoring conducted during placement (analytes monitored, frequency, etc.)? **Under the current permit, it does not.**

4. Can surface water monitoring be discontinued? **Yes, after closure.**
   - 4.1 What are the criteria for discontinuing surface water monitoring? **Determined on a case-by-case basis. At a minimum, the facility must meet post-closure requirements.**

5. How is surface water monitoring designed to specifically detect/distinguish the effects of CCW placement? **Determined on a case-by-case basis. For the existing site, the only affected surface waters are on-site retention ponds. Monitoring is not designed to detect/distinguish the effects of CCW. For future sites, statistical triggers would probably be incorporated.**

6. How is background surface water quality assessed? **Same as ground water**

7. What water quality standards/criteria must be met? **Determined on a case-by-case basis (water-body dependent). State surface water standards for the water body classification must be met. These can be found in 6 NYCRR 705.5 (stream classification and uses).**

**VIII Placement Practices**

1. What types of CCW placement are allowed (i.e., into active mines, closed mines, surface mines, underground mines, etc)? **Determined on a case-by-case basis.**

2. Is placement into the water table allowed? **Not under current beneficial use determinations. For RD&D permits, placement would be determined on a case-by-case basis.**
   - 2.1 If so, under what conditions? **For RD&D permits, placement would be determined on a case-by-case basis.**
   - 2.2 If not, how close to the water table is placement allowed? **No minimum under current rules.**
   - 2.3 If a liner is required beneath the CCW, what are the design/performance standards for the liner? **Liners are not currently required. If it was determined that a liner was necessary, the design/performance standards would probably be the same as those for ash landfills.**

3. Is placement into mine pools allowed? **Yes (not specifically prohibited).**
   - 3.1 What placement techniques are used? **Determined on a case-by-case basis.**
   - 3.2 Are there additional/special monitoring requirements after placement into a mine pool? **Determined on a case-by-case basis.**

4. Are there specific design/operational requirements for the following types of projects and, if so, what are they? **No to all.**
   - 4.1 Placement into underground mines?
   - 4.2 Placement into surface mines?
   - 4.3 Grouting?
   - 4.4 Acid mine drainage remediation?
   - 4.5 Soil conditioning?
   - 4.6 Mine sealing?
   - 4.7 Subsidence control?
   - 4.8 Spoil encapsulation?

**IX Operational Requirements/Design Requirements**

1. How is the potential for flooding/washout addressed? **Not applicable for the current site.**

2. Are runoff controls used/required? **Not applicable for the current site.**

3. Are leachate collection systems used or required? **No.**
   - 3.1 Under what conditions? **Not applicable.**
   - 3.2 What are the design criteria? **Not applicable.**

4. Is waste conditioning required? **Yes.**
   - 4.1 What waste conditioning methods are allowed? **Moisture addition.**

4.2 What design criteria exist for waste conditioning? **The flowable fill must be greater than two percent cement by weight, and must meet compressive strength requirements.**

5. What fugitive dust controls are used or required:
   5.1 During transport and discharge from transport vehicles? **Trucks are covered (per New York State Department of Transportation regulations), and the ash is wetted.**
   5.2 During/following placement? **During placement, the ash is in flowable fill, so dust is not an issue. After placement, reworking/displacement of the fill is minimized.**

6. Is a cover or cap required over the CCW? **Yes.**
   6.1 What are the design/performance criteria? **For the existing site, the final cover must consist of 18 inches of compacted soils overlain by 6 inches of topsoil, graded to a minimum slope of 2 percent, followed by the establishment of an appropriate cover crop. The cap must be monitored and maintained for a minimum of 30 years following closure.**
   6.2 What kind of cover materials are required? **See above for existing site. For other sites, determined on a case-by-case basis**.
   6.3 What minimum/maximum slopes are allowed for final cover? **See above for existing site. For other sites, determined on a case-by-case basis. Generally, the site must be returned to its approximate original contour.**
   6.4 What compaction criteria/standards apply to the cover/cap? **Determined on a case-by-case basis**.
   6.5 What are the maintenance standards for covers/caps? **See above for existing site. For other sites, determined on a case-by-case basis**.

7. Is re-establishment of surface streams required? **Yes.**
   7.1 What determines when it is appropriate and how it should be done? **Determined by stream classification.**
   7.2 What are the design criteria? **Design criteria are determined through coordination with the Division of Water, and occasionally the Division of Fish and Wildlife.**

8. Is contouring of waste so water drains away from the fill required? **Yes, per State mining laws and regulations.**
   8.1 When is it appropriate to contour wastes? **Whenever necessary to achieve the approved final grade.**

8.2 What are the minimum slope and compaction criteria? **Generally, approximate original contour. For the permitted site, a 2 percent grade was approved based on the approved future use of the site as a baseball field.**

9. Is re-vegetation required? **Yes.**
   9.1 What are the design criteria? **The Division of Solid and Hazardous Waste requires revegetation with an "appropriate cover crop." The Division of Mineral Resources requires revegetation success, with recommended crops.**
   9.2 What kinds of plants are used? **Determined on a case-by-case basis. State mining regulations state that vegetative material shall consist of grasses, legumes, herbaceous or woody plants, shrubs, trees, or a mixture thereof which is consistent with site capabilities. The vegetation should provide a cover consistent with the stated land-use objective, and should not present a health hazard.**
   9.3 What kinds of topsoil/compost are required? **Six inches of cover material capable of sustaining plant growth are required.**

10. Is the operator required to restrict public access to the waste and facility? **Yes.**
   10.1 What design/performance standards or criteria apply? **No specific standards exist.**

11. What are the post-closure maintenance requirements (e.g., maintaining cover integrity and effectiveness, slopes, vegetation, etc.)? **Final closure and capping must occur within 90 days of the earliest of the following:**
   - **When materials placed in the quarry have reached final grade;**
   - **the voluntary or involuntary cessation of placement of flowable fill at the site;**
   - **the expiration of any permit term for which the permittee does not seek renewal or is not authorized to seek renewal;**
   - **suspension or revocation of this permit by the Department;**
   - **an Order of the Commissioner or his designee directing same;**
   - **an order, judgement, or decree of a court of competent jurisdiction, permanently enjoining activities authorized under this permit or otherwise terminating, canceling or invalidating this permit;**
   - **failure to submit the annual report by the date for same herein designated;**
   - **a determination by the Department to deny renewal of the permit;**
   - **commencement of a voluntary or involuntary proceeding seeking relief under the United States Bankruptcy Code by or against the permittee, its parent corporation or any of its subsidiary corporations; or**
   - **receipt of Notice of Cancellation from the surety with respect to the financial assurance required pursuant to the provisions of the permit.**

   **A vegetative cover must be established within 180 days.**

12. How long is the owner/operator responsible for post-closure maintenance? **Determined on a case-by-case basis. The requirements of the mining permit end with complection of reclamation. The maintenance period required by the Division of Solid and Hazardous Waste is generally a minimum of 30 years.**

13. What other operational requirements exist? **Determined on a case-by-case basis. For the existing site, operational requirement include the following:**
    - **Construction and operation must be conducted in strict accordance with previously submitted documents, including the site Environmental Impact Statement and revised storage and operations plans;**
    - **Immediate termination of operations may be ordered for permit violations**;
    - **Activities at the site are restricted to the hours of 6am to 6pm Monday through Saturday;**
    - **Only coal fly ash and foundry sand may be accepted for disposal at the site, from pre-approved facilities;**
    - **A sampling and analysis plan is included as part of the permit;**
    - **All flowable fill at the site must meet compressive strength requirements and contain at least 2 percent cement by weight;**
    - **Fill progression, quarterly monitoring, and annual reports must be submitted to the NYSDEC by the facility.**

**X Corrective Action**

1. Under what circumstances are corrective actions required/what is the trigger for a corrective action? **Corrective actions may be triggered by violation of the permit.**

2. What types of corrective action measures are appropriate? **Generally, the State may require closure, capping, or possible removal of placed materials. For the existing site, the State may require immediate cessation of operations. Hanson has been issued citations for dust violations, all of which have been settled by the company.**

3. Does the state have any damage cases? **No.**

**XI Financial Assurance**

1. Is financial assurance required? **Yes.**
    1.1 What types of financial assurance mechanisms are allowed? **Liability insurance, bonds, letters of credit, certificates of deposit, and cash.**

2. What is the period of liability? **For the reclamation bond, the period of liability extends until final reclamation is completed. For the RD&D permit, the bond is renewed as the permit is renewed.**

3. What is the amount of financial assurance required? **Determined on a case-by-case basis. Usually an amount sufficient to complete reclamation and closure. For mining permits, this amount is generally $3,500/acre. Solid waste permits have no set amount. For the existing site, the Part 360 portion was based on the estimated cost to apply cap to largest open cell plus the cost to dispose of maximum allowable unused ash.**

4. What are the conditions for bond release? **Closure certification is required for bond release.**

5. Is there a separate State liability fund? **No.**
   5.1 What is the source of money for this fund? **Not applicable.**

**XII Reporting**

1. How frequently is monitoring data on wastes, ground and surface water reported to the government? **Quarterly.**

2. Is the data maintained at the facility? **No (it is not required to be by the NYSDEC).**

3. How often are sites inspected? **There is no fixed schedule. Instead, the frequency is determined by size and type of project. The existing site has been inspected frequently, due to its status as an RD&D project, and due to complaints about the site. Sites are inspected an absolute minimum of once each five years.**

4. How often is compliance with permit requirements, performance standards, enforceable limits, etc., evaluated? **Compliance is evaluated, at a minimum, during every site inspection, and upon submission of the quarterly reports.**
   4.1 Who is responsible for this evaluation? **The evaluation is shared by both the Regional and Central offices of the Divisions of Solid Waste and Mineral Resources.**

5. What are the post-closure reporting requirements? **Post-closure reporting requirements are the same as the permit requirements (quarterly, for the same analytes).**

6. How frequently does the regulatory authority inspect the closed facility, and what are the criteria for terminating inspection? **Not applicable; the only permitted facility is still in operation.**

**XIII Public Participation**

1. Prior to permit issuance, does the public have an opportunity to review and comment on monitoring (surface and ground-water) and/or modeling data and Probable Hydrologic Consequences determination? **Public involvement in New York occurs during the project scoping phase and development of the Draft Environmental Impact Statement. Public comment is welcome on the EIS and the permit application, and during any hearings needed.**
   1.1 What other opportunities for public involvement are there in the permitting process? **The public may also be involved during some permit modifications and post-permit hearings.**

2. Is monitoring data available to the public? **Yes, through New York's Freedom of Information Law (FOIL) requests.**

3. What opportunity does the public have to participate in overseeing compliance at the site? **The public may participate in compliance through FOIL requests. The public also has access to NYSDEC Conservation Officers 24 hours per day, 7 days a week. These are licenced State police, who specialize in enforcing the environmental and natural resource laws of New York.**

4. How does the public have access to post-closure reports? **Through FOIL requests.**

5. Are citizen actions allowed? **Yes.**
   5.1 What types of actions are allowed (e.g., petitions, suits)? **Petitions and suits.**
   5.2 Who adjudicates citizen actions (e.g., permitting agency, administrative law judge, State court, federal court)? **All of the listed choices, although access to administrative law judges occurs only during the permitting process.**