DIVISION 1100

ENVIRONMENTAL

DIVISION 1100 - ENVIRONMENTAL

1100.10 INTRODUCTION

This Division is provided for information only. It gives you an understanding of the complex laws and regulations that affect environmental issues. You need to be aware of these laws and regulations but you should not advise or direct the contractor regarding "Environmental Issues." However, reporting and recording in the field book all contractor activities is essential.

The phrase Environmental Issues can literally include almost anything from anthropological bones to endangered species, from land use to land disposal, from wetlands to storm water runoff, from wild flowers to underground tanks. For the purposes of this chapter, inferences will be limited to only those issues identified in each section. For this reason, much of the following information contains both general background and specifics. Probably the most important aspects of any environmental issue are:

- Environmental "issues" are to be taken very seriously. Inappropriate action can result in personal fines "and/or" jail. This is not intended as idle gossip or scare tactics. As a user of this chapter, it is important to know the facts of life.

- Contact the Construction Division or Project Development with questions, concerns, and observations. If there is a question about whether or not to notify, always make a notification.

  "IT IS FAR BETTER TO BE SAFE THAN SORRY!"

  Remember, individuals can be held personally liable for not reporting an environmental incident. Through notifying the next higher level, your liability is significantly reduced. While the Construction Division and Project Development may need to refer questions to others, it is important to notify the Construction Division and Project Development so issues can be responded to and tracked.

- ALL contacts with DEQ, OSHA, and/or EPA shall be made by, or through, the Construction Division. The only exceptions will be when some other office is better able to address the issues. For example: On legal issues, the Attorney General is better suited for a response. The inspector's responsibility is to contact the Project Manager and make a diary entry, the Project Manager is to contact the Construction Division, and the Construction Division will in turn contact the most appropriate office for response. **Remember: Timeliness in responses to a regulatory agency is of the utmost importance.**

- When the contractor causes an environmental incident, then he/she is responsible to take the appropriate notification and remediation actions. Our inspectors and Project Managers should notify the appropriate people through our chain of command and document the contractor's actions in the field book.

Normal notification chain of command:

- The Inspector notifies the Project Manager.
- The Project Manager notifies the District Construction Engineer (DCE)
- The DCE notifies the District Engineer and the HQ Construction Division.
- The Construction Division notifies the EPA, DEQ, Attorney General and all other affected agencies.

Emergency notification:

- First person to see/become aware of an environmental incident should take actions to notify the agency that can contain and mitigate the hazard.
- Simultaneously as notification is occurring, actions need to be taken to keep workers and public safe.

1100.11 ENVIRONMENTAL REGULATIONS

Environmental Protection Agency (EPA) is a Federal agency with environmental protection regulatory and enforcement authority. EPA administers such Acts as the Clean Air Act (CAA), Clean Water Act (CWA), Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Toxic Substance Control Act (TSCA), and other federal environmental laws. EPA was created by Congress in 1970. In this landmark legislation the lawmakers established a preamble for the EPA. The preamble states:

> *"Pollution prevention is based on the idea that it makes economic as well as environmental sense to stop producing hazardous waste, rather than attempting to clean-up hazardous substances after they have become released."*

U.S. EPA has, for the most part, delegated authority to the states for management of ongoing environmental functions. All actions and requests must be made to U.S. EPA, Region VII, Kansas City, Kansas, however, Nebraska DEQ does have specific regulatory authorities in Nebraska. Some instances are:

FIRST, DEQ has signoff responsibility for RCRA and CERCLA actions in Nebraska. This means before those actions can become final, DEQ must approve certain aspects of most actions.

SECOND, very often DEQ is asked to be the regulatory agency's on site coordinator. This means that an action and resolution may be developed with U.S. EPA. Once a cleanup action is initiated at a site, DEQ would provide site compliance inspection.

THIRD, and again very often, DEQ will choose to request U.S. EPA's permission to be the lead agency in a particular action. In this case, all direction will be from DEQ, with EPA assuming a secondary "review" role.

A large portion of "who's in charge" confusion can be attributed to the complex nature of environmental laws. This confusion can be, and is, further compounded by the mixture of regulating authorities in charge of enforcing these laws. The laws require action depending on the chemical(s) present and have significantly different action levels depending on how much of any one constituent is found. The final blow often comes when conversation is composed mostly of acronyms.

1100.12 REGULATORY AUTHORITIES

EPA

In Nebraska, U.S. EPA is responsible for CERCLA and RCRA programs. These are administrated by EPA's Region VII in Kansas City, Kansas.

OSHA

In Nebraska, OSHA is administrated by Nebraska Department of Labor. Enforcement of OSHA is the responsibility of the federal Occupational Safety and Health Administration. All complaints regarding maritime operations should be referred to the Federal Office in Kansas City, MO, except those involving State or local governmental employees which continue to be covered by the Nebraska Department of Labor.

Nebraska Department of Environmental Quality (DEQ)

DEQ is responsible for specific environmental regulatory functions. Most of DEQ's environmental authority and powers are listed in its legislated guidance. "Generally" this authority includes:

- Air Quality

  Clean Air Act and Clean Air Act Amendments, plus additional regulations codified by Nebraska legislature.

- Land Quality

  Nonhazardous waste disposal.
  All underground storage tanks.

- Water Quality

  Storm water pollution
  Water pollution
  Wetlands
  Public and private wells

- Waste Reduction

- Compliance and Enforcement

1100.13 ENVIRONMENTAL LAWS

Principle legislative acts which govern most of DEQ's work.

AHERA Asbestos Hazardous Emergency Response Act: Federal law codified in 1986. This act promulgates regulations which require inspection of buildings for materials which contain asbestos. If the material is found, it must be removed prior to demolition for health and environmental protection reasons. NDR has chosen to prepare and let a separate contract for removing asbestos. However, asbestos could be removed in conjunction with demolition.

CAAA Clean Air Act Amendments: Federal law codified in 1990 and regulates air quality issues.

CERCLA Comprehensive Environmental Response, Compensation, and Liability Act: Federal law codified in 1980, sometimes referred to as "Superfund." CERCLA gives the federal government the power to respond to releases, or threatened releases, of any hazardous substance into the environment as well as a substantial danger to public health or welfare.

CERCLA is a remedial statute designed to deal with problems of past mismanagement of hazardous waste. Under CERCLA, the government created a process for identifying liable parties and ordering them to take responsibility for cleanup operations.

CWA Clean Water Act: Federal law codified in 1977. The objective is to restore and maintain the chemical, physical, and biological integrity of the Nations waters.

NPDES National Pollutant Discharge Elimination System: Federal law codified through publication in 55 FR 47990 (November 16, 1990) and 57 FR 11394 (April 2, 1992). In a simple "nutshell", this is the Storm Water Pollution program.

OSHA Occupational Safety and Health Act: Federal law codified in 1968. Established for the regulation of site safety procedures, worker training, and worker safety and health standards.

Health related requirements of OSHA typically key on the presence of "TOTAL" amounts of listed elemental constituents. Be careful when considering constituents because OSHA often considers elements according to valence charges. For example; Trivalent chromium Cr^{+3} has one action level, while hexavalant chromium Cr^{+6} has another, and chromium (metal) has still another. Most of OSHA's regulations are found in *Title 29 Code of Federal Regulations (CFR) Sections 1910 and 1926*. A specific listing of chemicals is found in *Table Z, 29 CFR 1910.1000*.

RCRA Resource Conservation and Recovery Act: Federal law codified in 1976 which provided for the development of federal and state programs for the regulation of land disposal of waste materials and the recovery of materials and energy resources. The act regulates not only the generation,

transportation, treatment, storage, and disposal of hazardous wastes, but also municipal solid waste disposal facilities. Several amendments to RCRA have imposed a series of even more stringent requirements than the original law.

RCRA is a federal statute enacted to ensure that wastes are managed in an environmentally sound manner, and to protect human health and the environment from the potential hazards of waste disposal. Whereas CERCLA focuses on the cleanup of uncontrolled or abandoned sites, RCRA seeks to better manage active hazardous waste treatment, storage, and disposal facilities so new superfund sites will not be created in the future.

SARA Superfund Amendments and Reauthorization Act: A federal law codified in 1986. Amended CERCLA and introduced more stringent and detailed guidelines for cleanups. Also established regulations for industries using chemicals and releasing pollutants into the environment.

TITLE III of SARA requires that communities and the public be supplied with information on chemical inventories, release reporting, accidents/spills. TITLE III also provides for full public participation in planning and preparing for chemical emergencies arising from local industries.

SDWA Safe Drinking Water Act: Federal law codified in 1974. This law is intended to protect drinking water resources at the tap. Establishes control of contaminants in public drinking water and sets baseline national drinking water standards.

TSCA Toxic Substance Control Act: Federal law codified in 1976. Established for the regulation of toxic substances.

1100.14 WETLANDS

Special Environmental Conditions

New procedures have been established to bring specific attention to those environmental issues or documents directly (or indirectly) affecting our construction projects.

Reference is made to the attached Project Development Summary Sheets. These summary sheets will normally be two pages or less in length and pertain to such things as wetlands, waterway permits, historic bridges, and other environmental issues. These sheets will be sent to the districts, and the information shown thereon must be carefully compared to the provisions of the actual permits issued for the work involved.

Additional information will also be shown in the plans. Project Development will be preparing one or more "2W" sheets for inclusion in the plans. The "2W" sheets will provide delineation of wetland areas (on and off the project) and notes pertaining to special conditions or environmental issues. These plan sheets, also, should be checked against the provisions of actual permits issued for the work involved.

In order to insure that all parties involved are aware of the environmental issues affecting a project, please see that the following procedures are followed:

- Thoroughly review the plans and special provisions for environmental issues.

- Discuss all environmental issues at the pre-construction conference.
- Provide the contractor a copy of the environmental conditions summary.
- Invite Project Development to the pre-construction conference (when appropriate).

Protection of the environment has become a very important issue of public concern, and we must consider it to be a very important issue in the performance of our required duties. Please make every effort to see that we and our contractors fully comply with all environmental provisions of the plans and specifications.

Project No.:
Control No.:
Location:

PROJECT DEVELOPMENT SUMMARY SHEET

WATERWAY PERMITS

Type of Permit	Location	Permit Number

Special Plans (to be included in final plan package):

2WA Sheets	Yes____ No____
Mitigation Plan	Yes____ No____
Special Cross Sections	Yes____ No____
Others	Yes____ No____

Description:

Special notes on plans:

Special provisions (see attached):

Special conditions (see attached):

Additional comments:

_____
Wetlands Engineer (Signature & Date)

HISTORIC SITES

Historic Bridges Yes____ No____

Special Provisions (see attached):

Additional comments:

_____
Environmental Engineer (Signature and Date)

OTHER ENVIRONMENT ISSUES

Special conditions:

Special notes on plans:

Additional comments:

_____
Environmental Engineer (Signature and Date)

Army Corps 404 Permits

Over the past year there has been some new developments relative to the Army Corps 404 Permit process.

The General Permit 77-2 requires notifying the District Engineer of the Corps of Engineers of the date that work will commence, suspension of work if for more than one week, resumption of work and its completion. This same requirement exists under the Individual 404 permit which has been the responsibility of the Department's District Engineer and accordingly will be his/her responsibility under the General Permit. Notification is not required under the nationwide permit.

This Section lists the various permits required to construct roads and bridges across streams, wetlands, and flood plains and outlines the procedures to be employed in obtaining them.

Army Corps 404 Permits

The Army Corps 404 Permit process exists in three forms. They are:

1. Nationwide Permit
2. State General Permit (GP77-2)
3. Individual 404 Permit

PMS Activity 340 - Waterway Permits Review is scheduled at a point in time when the designer (Bridge Division or Roadway Design Division whichever is responsible for the project) should be sure that the project concept is firm. The activity requires the designer to contact the Project Development Division for a determination if any of the above listed permits are needed and if they have been acquired.

Permit Determination and Acquisition

On projects that the Nationwide Permit is applicable, no further notice to the Army Corps of Engineers is required. The Project Development Division will prepare a letter to that effect for the project files. If the State General Permit is in effect, or if an Individual 404 Permit is required, the Project Development Division will prepare the necessary applications. When these permits become available, they will be forwarded to the designer. These permits will also become part of the project files and need to be part of the PS&E package. Spaces are provided on the PS&E required sheet so that the designer can identify the type of permit required and, also, if it is included in the package. A flow chart of the 404 Permit Determination Process is attached.

Note on Title Sheet of Plans

The Contract Lettings and Communication Division will place a note on the title sheet of plans for projects requiring a 404 Permit (The Local Liaison Division will place such note for projects developed by that Division). The note will identify the kind of permit in use and the identification number (if applicable). Each of the three types of 404 permits require different special provisions. The Contracts Section is responsible for placing the correct set of special provisions in the contract.

(DEQ) Water Quality Certifications

This is a permit acquired from the State Department of Environmental Quality and is part of the 404 Permit process requirements. The Project Development Division will acquire the certification in conjunction with 404 Permits and retain the original in the project files. No copies will be forwarded to other Divisions unless requested to do so.

Dept. of Water Resources Flood Plain Permits

Flood Plain Permits are required by State Statute. As a general statement, they are required whenever a 404 Permit is necessary. Copies are forwarded to the Roadway Design and Bridge Divisions for the project files. No other copies are distributed unless requests are received. The original is retained by the Project Development Division.

404 Determination Checklist

Any temporary or permanent fill involvement in a stream — No → No 404 involvement

Yes

Is it in the Corps Regulatory Jurisdiction? (Check maps - 1/2" county maps available or letter stating limits) — No → No 404 involvement unless someone(agency) is requesting an individual 404 permit. Note: all streams are in the Corps Limits regardless of flow.

Yes

Does the Nationwide Permit apply?
1. Minor road crossing (total temporary and permanent fill less than 250 yd^3 (200 m^3). Some wetlands are allowed (100 ft (30 m) from each bank)
2. Backfill for utility lines.
3. Bank stabilization 500 ft (150 m) averaging (1.2 yd^3/ft (3 m^3/m))

@ Yes → No further work necessary.

No

@ Must make up an individual 404 permit application.

Send notice to Corps (by Project Development Division)
1. Vicinity map
2. Legal Description
3. Purpose
4. Typical temporary causeway section
5. Individual 404 permit application

@

@ Receive Letter of Authorization under State General Permit Individual 404 Application
1. Authorization to be forwarded to Construction Division when contract is awarded.
2. Construction Division to forward authorization to NDOR District Engineer
3. NDOR District Engineer to notify Army Corps of Engineers before construction starts and when construction is completed.

I. Corps of Engineers (C.O.E.) Wetland Regulatory Authority

A. Rivers and Harbors Act - 1890 - Navigable Waters

B. Federal Water Pollution Control Act - 1972

1. Section 404 Permits - Regulate discharge of dredged or fill material from or into waters of the United States.

2. Act amended in 1977 and given common name "Clean Water Act" (C.W.A.).

3. Wetlands are under the jurisdiction of Clean Water Act through 1985 court case. Those wetlands covered by the Clean Water Act are called jurisdictional wetlands.

II. C.O.E. Changes Jurisdictional Wetland Policy

A. Regulatory Guidance Letter - November, 1995 - in some cases, wetlands are no longer under the jurisdiction of the C.W.A. - no Corps regulation.

1. Former Policy - Wetlands in roadside ditches were under the jurisdiction of the Clean Water Act, thus regulated by C.O.E. - possible mitigation.

2. Current Policy

(a) Wetlands occurring in typical ditches, in upland areas are nonjurisdictional. Therefore, not under the jurisdiction of C.W.A. No Corps authority. No mitigation for impacts.

(b) If ditch was constructed in a wetland, then the ditch would be under the jurisdiction of C.W.A. Corps has regulatory authority. Possible mitigation for impacts.

(c) Borrow pits which exhibit wetland characteristics are under the jurisdiction of the C.W.A. Corps has regulatory authority. Possible mitigation for impacts.

B. Overall mitigation requirements will lessen which will result in lower costs.

III. C.O.E. Concerns

A. C.O.E. perceives there to be a problem with:

1. Disposal of road materials in waterways and wetlands.

(a) Section 404 of the Clean Water Act

(1) Dredge and fill activities require permit from C.O.E.

(b) Violation of Section 404 - Work done without a permit. Up to $25,000 fine per day that the violation is in place. Examples - filling wetland or dumping old bridge in waterway.

(c) Noncompliance with Section 404 - Not following permit conditions. Up to $10,000 per violation plus remedial costs. Examples - using asphalt or allowing concrete with exposed rebar for bank stabilization.

2. Impacting wetlands not cross hatched on plans. Examples - storing equipment in wetland areas or rock in ditched jurisdictional wetland to prevent the accumulation of mud on the road.

3. Failure to utilize silt fences.

The wetlands point of contact is:

Wetlands Program Manager
Project Development Division
(402) 479-4418

1100.15 WASTED GENERATED

"Solid Waste" means garbage, refuse, rubbish, and other similar discarded solid or semisolid materials, including but not limited to such materials resulting from industrial, commercial, agricultural, and domestic activities. This shall not prohibit the use of dirt, stone, brick, or similar inorganic material for fill, landscaping, excavation, or grading at places other than a sanitary disposal site. It shall be unlawful for any private or public agency to dump or dispose or permit the dumping or depositing of any solid waste at any place other than an approved sanitary landfill.

"Open Dumping" means the depositing of solid wastes on the surface of the ground or into a stream or body of water.

"Toxic and Hazardous Wastes" means waste materials including, but not limited to poisons, pesticides, herbicides, acids, caustics, pathological wastes, flammable or explosive materials, and similar harmful wastes which require special handling. These items must be disposed of in such a manner as to conserve the environment and be protective of public health and safety.

"Free Liquids" or wastes containing free liquids shall not be disposed of in a sanitary landfill. This includes industrial sludge and toxic or hazardous wastes.

1100.16 WATER WELLS

Occasionally contractors request permission to drill water wells on state property in order to secure water to use in the construction of a project. A written agreement should be executed between the state (DEQ) and any contractor who wants to develop a well on state property in order to assure that the contractor assumes responsibility and liability for use of the well.

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1100.17 ARCHEOLOGICAL AND PALENTOLOGICAL DISCOVERIES

If Indian relics, fossils, meteorites or other articles of historical or geological interest are encountered in highway excavation operations, such operations shall be suspended in the area involved "until such times as arrangements are made for their removal and preservation".

Under present procedures, the department is cooperating with the Nebraska State Historical Society and the University of Nebraska State Museum. Preliminary plans for highway improvements are made available to these agencies as far in advance of construction as practical. Their archeologists examine the plan locations and correlate any findings with their records and information. If any known historical relics or Indian habitations or relics are involved with the construction, arrangements are then made cooperatively with the department to remove and preserve such items in advance of the construction of the project.

It is expected that only rarely will such items be encountered during construction. However, if such articles are encountered, the Project Manager will have work suspended in the area involved, and immediately notify the Construction Division. Arrangements will then be made from that office for the removal and preservation of the articles.

Project Managers or their representatives should make a periodic inspection of the work site or sites on all archeological or paleontological work. This inspection is to determine that the work called for in the agreement is being performed. This periodic inspection should be made at least once a week. The Project Manager should keep himself advised of the progress so that no unnecessary delays to the contractor will occur. Confirmation that the contractor can resume work at the site will come from the Construction Division.

1100.20 UNDERGROUND TANKS

@ NDEQ has a website (www.deq.state.ne.us) which is an excellent environmental and underground storage tank reference.

Underground Storage Tanks (USTs) represent one of the more common environmental problems encountered. USTs may have been (or may currently be) used to store almost any kind of viscous material including petroleum products, chemicals, and discarded wastes (some of which could be classified as hazardous). Leaks from these tanks or their auxiliary components (i.e., piping, couplings, pumps, and valves) are not uncommon.

An Underground Storage Tank (UST) is defined as a tank and associated piping with 10% or more of its volume below the ground which has stored or is storing a regulated substance. Regulated substances include petroleum based substances (motor fuels, motor oil, home heating fuels, solvents, etc.) and any other substance which, if released into the environment may present substantial danger to public health, welfare, or the environment.

1100.21 REGISTRATION

EPA established a program for regulating Leaking Underground Storage Tanks (LUSTs). Under this program the design, installation, maintenance, monitoring, and failures of LUSTs are regulated. In Nebraska, this federal program is administrated by DEQ. All underground storage tanks are required to be registered with the State Fire Marshal Office. Tanks that have been registered should have a metal tag affixed to the fill pipe. Owners (including NDR) of underground storage tanks must:

A. Register existing tanks, previously removed tanks, and abandoned tanks. (The "registration" of a tank includes "any" tank from a tank at a gas station to one located in the middle of Timbuktu.)

In Nebraska, the registration includes attaching a numbered metal tag to the fill pipe of any underground tank. The lack of a tag does not necessarily mean the tank is not registered, but obviously the presence of a tag indicates it is registered. If there is a question about registration, contact the Construction Division. This office has access to the registration file at State Fire Marshal Office via computer, and can look up any registered tank with minimal basic information.

NOTE: Currently in Nebraska, there is a registration exclusion for tanks:

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- Farm tanks holding 835 gal (3164 L) or less.
- Tanks on or above the floor of underground areas such as basements.
- Tanks storing home heating oils used on the premises where it is stored.

@

- Tanks holding 110 gal (416 L) or less.

B. Meet tank performance standards for new installations.

C. Make tanks leak proof for their entire life.

D. Install leak detection systems.

E. Keep operational records.

1100.22 REMOVAL OF USTs

The following procedure for removing underground tanks is based on State Fire Marshall (SFM) regulations. For clarity, the following has been divided into known tank locations and unknown tank locations. (The law considers both the same. But because of bid items, contract administration requires them to be treated differently.) For all removals of underground tanks, follow appropriate Supplemental Specification.

Removal of Known Tanks

These tanks are the ones identified on the project plans and will be noted for removal.

A. Removal Process

IMMEDIATELY upon starting any project requiring UST removal, check the tankfill pipes for a metal Registration Tag.

- If tank has a registration tag, note its number in the inspectors daily diary.
- If the tank does not have a registration tag, the Project Manager must notify the Construction Division immediately. This notification will allow the Construction Division to check Fire Marshal records for a valid registration. Also, it will allow time for registration should the tank not be listed with the Fire Marshal.

  Note: Nonregistered tanks cannot be removed until after they have been registered, and that process can take a couple of weeks to complete. In addition, the Construction Division must submit a closure notification to SFM and Closure Assessment Report (CAR) as specified on the permit to close.

B. Closure Notification

- The Project Manager must initiate and submit a "Notification of Tank Closure or Change-in-Service" to the Construction Division 35 days prior to removal.
- After the form has been submitted and processed, SFM will send removal information and instructions directly to the Project Manager.

C. Tank Removal

Contractor's consultant is required to have certified Closure Individual with the SFM on site during the entire removal process. The contractor shall provide the NDOR Project Manager a photocopy of the individual's card and also Contractor's license to close tanks.

- Tanks must have ALL liquids **and** any explosive vapors REMOVED prior to extracting the tank.

  1. All removed liquids must be disposed in accordance with DEQ regulations.

2. Vapors are typically evacuated by placing dry ice into the tank. As the ice evaporates, carbon dioxide is released and the fuel vapors are displaced.

- State Fire Marshal may be on site to inspect the removal.
- Removed tank must be stenciled according to SFM requirements.
- Any registration tags must be removed and retained by the project inspector. These tags are to be submitted to (SFM) when the closure report is filed.
- Any extracted tanks should be removed from the site on the day of removal.
- A "Certificate of Destruction" must be completed for each tank at the time the tank is disposed.

D. Sampling

- All removals require soil and/or water samples to be taken by the contractor's consultant and analyzed for potential contamination.
- DEQ requires samples collected from tank sites to be analyzed using specific laboratory methods.
- Soil sampling locations are identified in the removal information and instructions furnished by DEQ. **Soil samples may be required below the Static groundwater table. The water shall be sampled if water is encountered during excavation.**

E. Contamination

- If contamination is found or suspected during the tank extraction, contact the Construction Division immediately. If appropriate Construction Division personnel are not available, the Project Manager shall notify DEQ directly. The telephone number for DEQ's tank section is (402) 471-4230. (The contractor's consultant will provide site information based on air monitoring if there are any questions.)
- The NDR has 24 hours to report this contamination unless an immediate threat exists. In that case, reporting times are reduced to 6 hours.
- Immediate threat means a potential exists for explosive conditions, immediate danger to life or health, or an immediate threat to water supplies.

- F. Site Safety

1. If, based on site conditions and situations, the inspector or contractor feels there is an immediate threat for **explosion**, the contractor shall:

   - Immediately shut-off all operating equipment, extinguish all sources of ignition (i.e., cigarettes etc.), and evacuate the area. This includes all personnel.

   - After the site is evacuated, establish controls to prevent site access and contact local and state authorities.

   @

   - No smoking signs must be in place. (No smoking within 50 feet).

   The inspector shall contact the Construction Division.

2. If, based on site conditions and situations, the inspector or contractor feels there is an **immediate** danger to life or health **other than** by explosion, the contractor shall:

   - Immediately evacuate the area. This includes all personnel and could include equipment.

   - After the site is evacuated, establish controls to prevent site access.

   The inspector shall contact the Construction Division.

3. If, based on site conditions and situations, the inspector or contractor feels there is an immediate danger to a water supply, the contractor shall:

   @

   - Using whatever means are available, immediately establish positive restrictions to limit or prevent migration of contamination to a water supply. **(If threats to life or health from explosion are not present).**

   - Watch for changing conditions which could present threats due to explosion and/or danger to life or health. If site conditions change, implement the appropriate response as noted above.

   The inspector shall contact the Construction Division.

G. Removal of Contaminated Soil

@ If the site is determined to be contaminated, one method of remediation is to overexcavate. Contaminated soil which has been over-excavated must be "properly" disposed. **(DEQ may provide approval to over-excavation--see pages 3-5 of the DEQ "Petroleum Contaminated Soils Guidance for Leaking USTs".)**

H. Disposal Options

There are several approved methods for disposal, however, DEQ must preapprove any disposal option. Some options which have been successfully used include:

1. @ Removal of soil and disposing in a licensed landfill. This not only requires prior approval by DEQ, but also approval from the local receiving landfill.

@ Typical costs for this option range from $15 to $40/yd^3 ($15 to $40/m^3) plus trucking.

2. Another option which is limited by physical location is that of "soil burning." The process involves treating petroleum contaminated soil by passing it through a rotating drum where there is high heat and flame. (It is a converted asphalt drum dryer.) During "treatment," soil moisture is driven off, combustible products in the soil are first volatilized and then flashed off. The result is dry "petroleum" free soil.

@ While the remedial concept is reasonably sound, the cost for this remediation is very expensive (costs range from $30 to $70 per Ton (Megagram)) not to mention trucking costs to the plant. However, if a project is in that area, "soil burning" is one option available for remediation.

For completeness, a word of caution must be included about this process. The process, if properly operated, removes petroleum contamination, however, it does not remove other potential contaminants (i.e., heavy metals, pesticides/herbicides, etc.) Often the plant requests anyone bringing soil to the plant to back haul "processed" soil. Obviously, clean/remediated soil is a by-product of this operation. **DO NOT AGREE TO BACK HAUL ANY "REMEDIATED" SOIL FROM THIS OPERATION WITHOUT FIRST CONTACTING THE CONSTRUCTION DIVISION.** This does not mean the facility should not be used, or that the remediated soil is not clean. DEQ needs to be sure there are adequate and quantifiable analytical results to assure back-hauled soils are not contaminated with other substances.

3. Another option is to remove the soil (over-excavate) and spread it out on the surface. This method is called Land Application and also requires preapproved permit from DEQ. The land application of petroleum contaminated soil provides an effective means of treatment through volatilization and biodegradation. Land application has been used successfully in situations where NDR owns (not by temporary easement) a parcel of excess right-of-way.

In situations where contaminated soil must be remediated, the Project Manager should look for and identify suitable locations to the Construction Division. Criteria for land application are:

@ • Maximum application rate is 4 inches (100 mm) thick **OR** 500 tons/acre(1.12 Gg/hectare). Based on an estimated excavation volume, the inspector can calculate approximate remediation area.

• Petroleum saturated soil cannot be land applied. (The KEY is "petroleum saturated" not "moisture saturated." Soil excavated below the water table may be land applied, as long as it does contain free (decantable) petroleum products.

• Petroleum contaminated soil cannot be applied any closer than:

@ a. 525 ft (160 m) from a well.

b. 200 ft (61 m) from an occupied residence.

@

c. 200 ft (61 m) from a stream, river, lake, pond, sinkhole, or down gradient intake for a tile line or culvert.

- Slopes must be less than 5%.

@

- Potential land farming areas with sandy, sandy loamy, and high silty soils are not acceptable. There also must be at least 6 ft (2 m) of existing topsoil over bedrock.

- Obviously the site must be accessible to trucks or hauling equipment and have no other planned traffic or activity during the remediation time.

- Soil for remediation will have to be leveled and disced at least two times during the course of remediation. One discing needs to be soon after placement and leveling, the other about 2 months later. Once the soil has been tested and analytical results indicate it is clean, the area should be fertilized and seeded with a suitable stabilization crop.

l. Closure Report

- Contractor and/or the contractor's environmental consultant are responsible to complete the closure report.

- The report shall locate all removed tank locations by station and offset.

- Closure reports are to be submitted to the Project Manager within 20 days of completion of sample analysis. The Project Manager shall keep a copy of all reports in the project files and forward original to the Construction Division within 5 days of receipt. The State Fire Marshall's Office must receive a copy of the closure report before the deadline listed in the permit to close, usually 45 days from date of tank removal.

@

Closure reports are to contain:

1. Completed preprinted SFM closure forms. Check to be sure the following information is included:

   a. All lab reports.

   b. Construction details.

@

   c. Scale dimensional site drawing showing location and depth, location and depth of all piping, location and depth of all sampling and monitoring well locations. NOTE: All locations are to be referenced by station and offset from mainline or side road survey.

2. Tank registration tags.

Removal/Discovery of Unknown Tanks ("Orphan" Tanks)

For the purposes of this chapter, "unknown" tanks should be considered those tanks not identified on the plans but encountered during a project. Most likely the discovery of an unknown tank will come at the worst time. For example, machinery running, work time in a crunch, and "any" appreciable delay will work a severe hardship on the contractor. Therefore, timeliness and notification become critical in dealing with the issues.

Upon finding a previously unknown tank, follow these guidelines:

FIRST: Immediately stop all work in and around the tank.

SECOND: Determine the site conditions. For example:

A. Note tank condition and damage. Is liquid leaking from the tank? If so:

1. If fuel is released, call:

- NDEQ at (402) 471-4230 during office hours or (402) 471-4545 NSP (State Patrol) afterhours. Leaking Underground Storage Tank/Release Assessment Section (LUST/RA).

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- State Fire Marshal's Office (SFM)
  Flammable Liquid Storage Tank Division
  (402) 471-9465 Clark Conklin

- Construction Division (402) 479-4532

2. If, based on site conditions and situations, the inspector or contractor feels there is an immediate threat for **explosion**, the contractor shall:

- Immediately shut-off all operating equipment extinguish all sources of ignition (i.e., cigarettes etc.) and evacuate the area. This includes all personnel.

- After the site is evacuated, establish controls to prevent site access and contact local authorities.

The inspector shall contact the Construction Division.

3. If, based on site conditions and situations, the inspector or contractor feels there is an immediate danger to life or health other than by explosion, the Contractor shall:

- Immediately evacuate the area. This includes all personnel and could include equipment.

- After the site is evacuated, establish controls to prevent site access.

The inspector shall contact the Construction Division.

4. If, based on site conditions and situations, the inspector feels there is an immediate danger to a water supply, the contractor shall: **(Threats to life or health and explosion are not present.)**

   - Using whatever means are available, immediately establish positive restrictions to limit or prevent migration of contamination to a water supply.
   - Watch for changing conditions which could present threats due to explosion and/or danger to life or health. If site conditions change, implement the appropriate response as noted above.

   The inspector shall contact the Construction Division.

B. If leakage is not apparent determine if any liquid is in the tank.

C. Attempt to determine the size of the tank (volumetric and/or dimensional size estimation).

@ D. Is there any indication of past leakage? (Stained (discolored) soil or smell of fuel are indicators.)

E. Establish tank location by station, offset and approximate depth. Also indicate approximate street address if available.

THIRD: Begin to establish some positive control to eliminate access to the immediate area. (Silt fence, snow fence, or orange safety fencing set on fence posts are examples of temporary restraints.)

FOURTH: Notify the Project Manager or supervisor of the discovery and provide site conditions to them. If the Project Manager will not be available for some time (3 to 5 hours), the inspector shall contact the Construction Division directly.

FIFTH: The Project Manager shall notify the Construction Division. (NDOR has a legal responsibility, and time limit, to report finding previously unknown USTs.)

1. For Reference: Time expired since first discovering the tank shall not be more than 5 hours before contacting the Construction Division.
2. Leave tank in place.

@ 3. Post "No Smoking Within 50 ft (15m)" signs near tank and secure from general public. Use snow fence.

4. The Logistics Division will apply for a permit to remove tanks as soon as possible. Permit required from Fire Marshal's Office.
5. Removal by licensed contractor (State or private company) will be scheduled as soon as possible.

@ 6. The firm or person in charge of tank removal must notify the Fire Marshal's Office 72 hours before taking out the tank and give the DEQ a minimum of 24 hours advance notice. If NDOR completes a Closure Assessment Report, DEQ advance notice is not needed.

7. Tanks removed from the ground shall be stored in a secure location inaccessible to the general public.

8. A licensed certified closure individual must be present during excavation and tank removal.

9. If contamination is present in the excavation, the State Fire Marshal and the Department of Environmental Quality must be notified within 24 hours if they are not present during the scheduled time of tank removal.

@ 10. Soils will be disposed of as directed by the NDEQ. Land farming may be required. Contact Waste Management Section of NDEQ (402) 471-4210.

11. The excavated area should be backfilled with clean soil and compacted as required by the Project Manager.

12. For more information, refer to Title 159, Rules and Regulations for Underground Storage Tanks. A copy is available in the Lincoln Logistics Division Office.

13. If fuel contaminated soils are encountered during normal construction activities, notify the Lincoln Construction Office even if no tank is found. The Lincoln Office will notify the NDEQ LUST/RA Section and Waste Management Section.

Recap:

- All construction activity around the area of the tank shall be halted, and remain that way, pending further investigation.
- Preliminary site assessment shall be completed. Included in this assessment shall be an evaluation for imminent dangers.
- Site "SPILL CONTROL" measures should be implemented if needed.
- Positive constraints shall be in place to prevent free public access of the site.
- The Construction Division shall be notified of the discovery.

What Happens Next?

- Construction Division notifies NDEQ and SFM about finding an unknown UST.
  - •• DEQ does not need to be notified about an unknown UST unless there has been a release or unless DOR will not be completing a Closure Assessment Report.
- Construction Division will determine if the UST is registered. If not, a registration process will be initiated. (An unregistered UST cannot be removed until after it is registered.)
- The Construction Division will request SFM's approval to remove the tank, once registration status is resolved.

- The Project Manager needs to use this time to negotiate an Change Order for tank removals.

Once SFM authorizes removal, a notice will be provided to the Project Manager. Removal from this point forward is outlined in SFM approval documents.

1100.30 STORM WATER DISCHARGE (NOT YET FULLY IMPLEMENTED)

All NDR construction projects which disturb 2 ha (5 acres) or more are required to have a STORM WATER PERMIT. (The rules also apply to cities and counties with populations of 100,000 or more.)

A Storm Water Permit requires specific actions intended to reduce and/or eliminate the problems associated with runoff, soil erosion, and siltation. To comply with this environmental regulation, the NDR has developed the following procedure:

- Projects which disturb 2 ha (5 acres) or more are identified by Project Development.
- When projects are turned in, Project Development tabulates projects with PPPs and sends NOIs and newspaper notices to the Construction Division.
- The Construction Division forwards required notices to appropriate newspapers for publication. Once publication verification is returned, the Construction Division assembles all parts for NOIs and forwards copies to DEQ and the Project Manager.
- At this point, the Project Manager administering a particular project is notified that a Storm Water Permit is in place. (The contractor may begin work any time after that notification.)

Project Manager shall check to assure that projects requiring a Storm Water Permit have a Pollution Prevention Plan (PPP). Along with a PPP there should be bid items for pollution control items such as silt fence, stabilizing crops, ditch checks, etc. As always, it is important to check preliminary plans whenever possible to be sure all needed contract items have been included. Obviously, if a contract is let without erosion control items, the Project Manager will have to change order those items.

1100.31 NOTICE OF INTENT (NOI)

NOIs are NDR's official notification to DEQ that there is a project located at "xxxxxxxxxxxxxx," and the project will be disturbing at least 2 ha (5 acres) or more are required to have a STORM WATER PERMIT. (The rules also apply to cities and counties with populations of 100,000 or more.)

1100.32 CONSTRUCTION DIVISION POLICIES

- Project Managers shall have a copy of all contractor NOIs (noncommercial sources) on file in the project documents before allowing a contractor to produce or provide material for the project.
- *SSHC Subsection 204.02* restricts exposing erodible soil to less than 75000 ± m² (90,000 sy) without prior approval of the Project Manager. Criteria for approving a variance to the maximum exposure limit will be based on:

  A. Having current exposed area protected with erosion control measures. Minimum measures would include silt fence around the perimeter of the area, ditch checks, and additional silt fence where sediments may leave the project. This includes all disturbed areas (i.e., borrows, areas within temporary and permanent easements.)

B. The contractor has demonstrated ability and willingness to keep erosion control measures current and maintained within existing work areas.

C. Consideration must be given for the time of year before exposing additional areas. For example: It would not be unreasonable to deny a request for additional working area in a situation where it is late in the grading season and the contractor is falling behind in finishing, applying mulch, or temporary seeding.

Also, it would not be unreasonable to place a condition on approving an additional spread. For example: "Contractor, you may open area "X" as soon as you have finished and stabilized up to Station "Y.""

D. The contractor has successfully followed their erosion control work plan. The Project Manager has not noted storm water violations, and has every reason to believe additional open areas will **not** over-extend the contractor's ability to comply with our Storm Water Pollution Permit.

It is strongly recommended that the Project Manager approve additional area on a case-by-case basis and consider approval on the contractor's previous work experience as well as site conditions.

- Contractors have been told it is their responsibility to maintain the project within storm water compliance. They have also been told about the need to be prepared to complete requirements of their Pollution Prevention Plan should a subcontractor not be able to perform.

@

Pollution prevention is necessary even through most of the erosion control work is subcontracted to DBEs. However, compliance is a must and project administrators **MUST** be sure the project is maintained within storm water requirements and that the Pollution Prevention Plan is followed.

1100.33 QUESTIONS OFTEN ASKED

The weather is not favorable to establish temporary seeding or silt fences. What do we do?

A. Stabilization

Regulations say if an area will not have any activity for 21 days; by the 14th day, some form of stabilization will be required. There is very little latitude in that statement even if it is wet or freezing.

To be in compliance with storm water regulations, something needs to be done. For example, incorporating mulch, using HydroMulch or Soil Binders which are comprised of wood fiber and paper mulch. Both work, but tend to be expensive knowing it is less than temporary and we will have to ultimately seed.

Best solution is to conduct temporary seeding in a timely manner and not let the contractor get so much open that it cannot be stabilized by seeding. At the least keep it to a minimum so if one of the other alternates is necessary, costs can be kept to a minimum.

B. Localized Soil Erosion (Ditch Check and Slit Fences)

Bale checks used as ditch checks are most likely not as effective as "properly" installed silt fence. However, in situations where you are unable to properly install silt fence, bale checks are far superior to nothing at all. For example:

- It is wet and muddy, a trencher cannot get in to place silt fence. Interim ditch check should be bale checks.

- The ground is frozen to a point where a trencher will not work. Winter is coming. Rather than do nothing, bale checks should be installed. At least there is protection in place during the spring thaw. If an "Indian Summer" comes along and silt fence can be installed, by all means replace the bale check.

Bottom Line: Bale checks are very good interim erosion control measures when used in emergency situations. (Check the Road Standards as Roadside Development is resurrecting a standard for bale checks.)

How are borrows evaluated for Storm Water compliance?

All project specified borrows are included in the calculation for a Pollution Prevention Plan (PPP).

A. Pond Borrows

- All pond borrows (wet or dry) during construction must have at least the perimeter protected by erosion control measures. Plus, site specific considerations must be included if there is any dredging involved during construction.

- Temporary stabilization and mulching will not be required on concave slopes within the borrow. However, channels (in-flow and/or out-flow) will require stabilization or erosion control measures.

- Seeding for pond borrows will be required on any disturbed area above normal design pool or ground water elevation.

B. Wetland Mitigation Areas

- Seeding for wet land areas typically does not require special attention. Usually these areas are seeded with the same vegetation crop as any other disturbed segment on a project. Check the contract documents for non-standard situations where special aquatic plants such as cattails, wild rice, etc. may be required.

- Refer to Pond Borrows (Section A, above) for guidance in areas of standing water and selected sections in Normal Borrows (Section C, below) for those areas which are dry during seeding. In either case, all "normal" erosion control practices are required for wet land areas.

C. Normal (Dry) Borrows

- All normal borrows must be protected by perimeter erosion control measures, and are included for temporary erosion control measures if work is halted at that site for more than 21 days.

- All normal borrows, purchased by fee title, shall be included in the area which is permanently seeded.

- Normal borrows obtained by temporary easement:

  1. That require replacement of topsoil **AND** are used for agricultural row crops. The Project Manager needs to ask the property owner if they want the area permanently seeded.

     a. If the property owner requests permanent seeding, provide that seeding.

     b. If the property owner does not want permanent seeding, shape and place temporary seeding on the area. In this case, because the property will be returned to agricultural row crop use, consider temporary seeding as complying with storm water requirements. Note: Other temporary erosion control measures in that area will have to be maintained until the project is accepted.

  2. For temporary easements NOT used for agricultural row crops, permanent seeding will be required. (Examples of this situation would be permanent pastures, timber land, non-farmed land, etc.)

Is snow considered temporary cover in the Storm Water regulations? YES.

Storm water regulations are written recognizing that snow is a **"temporary"** preventive measure. However, just because it snows may or may not fulfill a winter long stabilization and definitely will not comply as spring thaws begin. As soon as the snow is gone, some other means of stabilization is required. ("Gone" could be by melting, wind, or snow plow.) Best advice is to keep working on some form of soil stabilization until it absolutely freezes so hard that work from then on will not be practical.

EXAMPLE: If snow comes in late October and is blown off the site by mid December, then some other form of temporary stabilization is required from that point forward.

Plan notes have designated a plant site within NDR right-of-way. Further, the contractor is told it is their responsibility to provide a permit for this activity. Who is ultimately responsible?

@ The contractor is responsible for that portion of area designated as the "plant site." When this situation occurs, the contractor should modify the project PPP by note to exclude the plant site when the contractor's NOI becomes effective.

1100.40 BRIDGE PAINTING

Few construction tasks have undergone as many significant changes in the last couple of years as bridge painting. Much of this was necessary because of past bridge coatings and changes in environmental regulations. *Supplemental Specifications* were developed for projects which should not produce hazardous wastes. The word “should” is used very carefully, because anything is possible. In an attempt to preclude surprises, pre-project tests for lead (scratch tests) are required for any proposed painting and/or demolition work.

For bridges failing the scratch test (i.e., showing the potential for producing a hazardous waste) a Special Provision (SP) will be written to deal with the added requirements of removal, health & safety, and disposal. The following information about bridge painting is written for the bulk of our work - those projects involving nonhazardous paint wastes.

Note:

A. Nonhazardous paint waste as used herein is referenced strictly from RCRA disposal regulations and the waste's successful passing of the TCLP test.

B. No matter what information is available going into a project one must proceed cautiously, always being protective of human health and the environment. It is essential to sample and analyze wastes for proof.

Background

During the past several decades NDR has used:

- Lead based paints. Usage began about the time Lewis and Clark leisurely floated "up" the Mississippi. Its usage in Nebraska continued until the mid 1970's. By and large, lead paint systems functioned very well and were used in practically all painting applications, from bridges to sign trusses, from light poles to fire hydrants. Experience indicates this paint will produce hazardous waste.
- Solvent based Zinc paint

  A. Zinc Chromate

  In the early 1970's it became apparent there were worker health and safety problems associated with lead based paints. During the time between mid 1970's to late 1970's, NDR began using zinc chromate paint as a primer along with a vinyl top coat. Experience now indicates the Zinc Chromate pigment will produce worker health and safety problems and hazardous wastes.

B. Zinc Silicate

  Beginning in the late 1970's zinc silicate was specified as a primer for shop and field applied paint. This system along with a vinyl top coat was used until early 1993. Experience indicates this paint will not produce a hazardous waste, but there have been cases where leachable levels of lead are present. Further, there is evidence that low levels of lead are present in airborne dust generated during abrasive blasting.

1100.41 METHODS OF PAINT REMOVAL

Open Abrasive Blast Cleaning

Open blasting uses compressed air to propel abrasive particles against the surface to be cleaned. The system creates high levels of dust which, if not contained, can become airborne causing fugitive dust and respirable dust. All open abrasive blast systems must therefore be contained both for waste collection and dust emissions.

A. Open Blasting using Expendable Abrasive

1. The abrasive used for this method is used once and becomes waste to be disposed. Typically, one of several low cost readily available materials such as sand, furnace slag, aluminum oxide, or garnet is the abrasive of choice.

   Expendable abrasive - open blasting is usually the method of choice for contractors because of familiarity, productivity, and ease of operation. Contractors also consider it the most economical due to readily available equipment and low abrasive costs. However, from an environmental and worker health position, the system is more expensive because of the need to fully contain the operation, increased worker risk to health problems, and significantly large volumes of waste to be disposed.

2. There is a variation of expendable abrasive - open blasting which has been used successfully for minimal touch up and removal of minor amounts of overspray. This variation uses "corn cobs" for abrasive, controlled abrasive usage, and very small diameter blast nozzles.

B. Open Blasting Using Recyclable Abrasive

In this system the abrasive is accumulated after usage, cleaned, and reused more than one time. Recyclable abrasives must be hard and durable. Thus metallic material is typically used.

When recycling abrasives, special equipment is required to collect, classify, separate, and convey collected waste residue. Also, since the abrasive is harder, contractors must pay close attention to abrasive gradation to keep a cleaned surface profile within acceptable ranges. A contractor must also closely monitor the separation process. It is very important to "completely" remove all fine material from abrasives. If the abrasive is improperly or incompletely cleaned, dust concentrations within the containment can be adversely affected.

Several methods are available in the industry to filter discharged air from the system. The NDR will NOT approve a system that uses water for blasting or water filters to remove particulates. This is because the water then becomes another different waste for disposal.

As with all open blasting operations, the recycled abrasive method must also be fully contained. Costs associated with recyclable abrasive include additional equipment and increased initial abrasive costs. This is offset by increased cleaned surface area per unit of abrasive (some times up to 100 cycles) and reduced volume of waste produced.

Closed Abrasive Blast - (Vacuum Blasting)

Compressed air is used to propel abrasive particles against the surface to be cleaned. The blast nozzle is fitted into a localized containment assembly, which is attached to a vacuum. Dust, abrasive, and paint debris are vacuumed simultaneously with the blasting operation. Debris is separated for disposal and the abrasive is returned for reuse. Typically, hard metallic abrasives are used for this system.

As with Open Abrasive blasting, NDR will NOT approve a system that uses water or water filters.

The most limiting factors of vacuum blasting are its reduced production rate and operational problems cleaning edges and irregular surfaces. NOTE: To be completely effective, the whole nozzle assembly must be sealed against a surface. This is the only way to maintain proper suction for the vacuum operation.

Vacuum blasting equipment is expensive, however, both worker exposure to dust and environmental emissions are substantially reduced if the operations are conducted properly. Thus the Special Provisions may allow vacuum blasting to be conducted without requiring full containment.

Hand and Power Tool Cleaning

Supplemental Specifications may identify cleaning by methods other than abrasive blasting. In these cases SSPC - SP 2, SP 3, or SP 11 will typically be noted as acceptable surface preparation standards. (Steel Structures Painting Council "SSPC" is an organization whose purpose is to develop industry standards for painting. The above noted standards, i.e., SP 2, SP 3, etc. are visual standards used to evaluate cleanliness of steel surfaces.)

A. Hand Tool Cleaning

Hand tool cleaning involves manual operated impact, scraping, sanding, and brushing tools. Typical equipment would be slag hammers, chipping hammers, putty knives, paint scrapers, and wire brushes. Hand tool cleaning will produce little dust however, only loose material is removed while intact rust, sound paint, and mill scale remain.

B. Power Tool Cleaning

Power tool cleaning uses electric and/or air operated impact grinding, or brushing tools. Usually power chippers, needle guns, descalers, power wire brushes, and grinding wheels comprise equipment for this. Power tool cleaning produces some dust and can generate airborne debris.

Because airborne dust and debris are generated, workers must have respiratory and dress protection. However, protection for power tool work is considerably less stringent than required for abrasive blasting where the operator and helpers would be required to wear air supplied blasting hoods and some type of encapsulating suits.

1100.42 CONTAINMENT

As currently specified, methods that do not involve open abrasive blasting (i.e., hand tool cleaning and power tool cleaning) do not require total enclosure because minimal fugitive dust is generated. However, because paint residue and other foreign material is generated by the process, some form of debris containment is required.

This can be as simple as a tarp (or diaper) placed under the working area. All material falls onto the tarp, is picked up at the end of each day, and is placed into a waste container for "proper" disposal. Removed paint or other debris shall not be allowed to remain at the site following a cleaning operation. It must be picked up, containerized, and disposed of in accordance with the contract documents.

THERE ARE NO EXCEPTIONS!

Design Considerations

Designing containment and ventilation systems that protect the environment without unduly endangering the health of workers pose a challenge to the painting contractor. A containment system includes:

- Some type or form of structure (i.e., walls, ceiling, floor).
- A ventilation system consisting of forced (or natural flow) air input.
- A mechanical (or natural flow) exhaust passage and exhaust dust collection equipment.

Unfortunately, the containment structure built to protect the environment can expose workers inside to extremely high levels of airborne particulate. Thus various containment and ventilation components must be uniquely combined with consideration to containment design, structure location, method of surface preparation, worker protection requirements, and constraints on emissions.

Containment for the purposes of our specification, is primarily to protect the environment (i.e., keep fugitive dust below regulated levels, capture and accumulate waste, and facilitate recovery and collection of waste material). To accomplish "containment" the structure must be virtually air tight, unless some type of mechanical exhaust system is used.

With all of that said, one could realistically question:

- How can this be accomplished?
- If the containment is air tight, how does it remain so once pressurized during blasting?

The answers to these questions identify the importance and need for some type of exhaust system. As capacity and capability of the exhaust system's efficiency increases, the importance of totally sealed containment decreases. For example: If the exhaust system is capable of evacuating more air than is pumped in during blasting, the difference is allowed for containment.

Often "negative air" is a term used to describe air exhausting systems. For our purposes, this term will be used to signify that the exhaust system is withdrawing at least as much air as:

- Is being supplied by the blasting nozzle(s) and
- The combined effects of all leakage in the containment.

  Obviously in situations described above, **"NO NOTICEABLE DUST"** can escape the containment.

While the exhaust system capacity is important it is only as effective as the system's filtering ability. All exhausted air must be filtered to remove suspended dust and particulate. Typically, a dust collection system (i.e., bag house) is attached to the discharge or exhaust equipment.

Rules-of-Thumb:

Good field checks on the effectiveness of any containment are to:

- Watch for signs of dust escaping the containment and/or dust being discharged from exhaust system.
- Containments with proper air handling systems should appear concave along the walls during blast operations. They should **NEVER** appear to bulge during blasting.
- Containments with proper air handling systems should not be so dusty inside that visibility is severely limited.

1100.43 PAINT WASTE DISPOSAL

Toxic Characteristic Leaching Procedure Testing

All waste generated during removal operations SHALL BE sampled and analyzed by the contractor. The waste sample shall be submitted to a laboratory for a TCLP heavy metals analysis. This analysis is for eight environmentally regulated metals typically found in paint and abrasive wastes.

Hazardous Waste Designation

Paint debris is classified as hazardous due to the characteristic of toxicity, if after testing by TCLP, the leachate contains any of the elements in the concentrations equal to or greater than those listed below.

	REGULATED LEVELS *	
	METAL	mg/L
	Arsenic	5.0
	Barium	100.0
	Cadmium	1.0
	Chromium	5.0
	Lead	5.0
	Mercury	0.2
	Selenium	1.0
	Silver	5.0
*	All regulated levels are **"AS OF"** spring 1994.	

The Construction Division will attempt to issue a timely memo to all field Construction Divisions when changes occur.

NOTE: Other elements, chemicals, and characteristics can cause a material to be hazardous as defined in *40 CFR 261*. It is for this reason the *Supplemental Specifications* require that no other waste be mixed with paint waste generated during the cleaning process.

If any analysis indicates the presence of metals in levels close to (or above) those listed, contact the Construction Division **BEFORE** issuing a notice for transporting the waste.

Notice for Transfer of Nonhazardous Paint Waste

For all projects involving the removal of paint wastes, some form of manifesting is required. For "nonhazardous" paint wastes (waste with leachable levels below those listed above), *Supplemental Specifications* states:

> "Accumulated wastes shall not be removed from the temporary storage area without proper documentation."

@

This ***notice of disposition*** has been standardized and is used as NDR's internal manifest of material being shipped.

The contract documents will identify an NDR facility which has been designated as the "RECEIVING FACILITY." Currently, for construction projects only (not maintenance projects) this is the central complex at Lincoln, Nebraska. There has been a fenced facility designated for storage of nonhazardous paint, which is located at the NDR Maintenance Facility in Lincoln.

Prior to shipping any waste:

1. Waste analysis results shall have been reviewed and determined that the waste is **NOT** hazardous.

2. A "Notice for Transfer of Nonhazardous Paint Waste" form shall be completed by the contractor. (Instructions for completing the form are printed on the form.)

3. The Project Manager will arrange a delivery schedule with the contractor and receiving facility. For those projects where the waste will be delivered to Lincoln, contact the Project Development Division, (402) 479-4795.

1100.50 DISPOSAL OF CONSTRUCTION WASTES

1100.51 ASBESTOS

Asbestos is the name for a group of natural minerals that separate into strong, fine fibers. The fibers are heat-resistant and extremely durable. There are a number of different types of asbestos including Chrysotile, Amosite, Crocidolite, Anthophylite, Actinolite, and Tremolite. The typical size of asbestos fibers is from 0.1 to 10 micrometers. This makes them usually invisible to the human eye. Because of their fine size, they can remain suspended in air for hours when disturbed. This increases the possibility of human exposure via inhalation.

Health Concerns

Medical studies have shown that the primary exposure route for asbestos is through inhalation. The following diseases can result from inhalation of asbestos fibers:

- Asbestosis - A noncancerous respiratory disease that consists of scarring of lung tissue
- Lung Cancer
- Mesothelioma - A rare cancer of the thin membrane lining of the chest and abdomen
- Other Cancers - Some studies have suggested that exposure to asbestos is responsible for some cancers of internal organs such as esophagus, larynx, stomach, colon, and kidney.

Asbestos Removal

U.S. EPA regulates the removal of asbestos containing material from facilities which are being demolished or renovated. EPA regulations for removal, and subsequent disposal, are set forth in 40 CFR 61. Generally speaking, the following procedures must be followed:

- For all facilities, U.S. EPA must be notified prior to renovation or demolition. This notification must include an estimate of the approximate amount of regulated asbestos containing material to be handled. For the NDR, this notification is handled through the Project Development Office.
- Regulated Asbestos-Containing Material (RACM) must be removed prior to any activities that would disturb the materials or prevent future access to them for removal.
- When RACM has been removed, it must be contained in a leak-proof wrapping or bag and properly labeled for disposal.
- All asbestos removal and handling operations must be performed under the supervision of an individual trained and certified in asbestos handling.
- U.S. DOT regulates the transportation of asbestos and identifies it as a hazardous material. Before accepting RACM for transportation, a transporter must ensure that

it is properly contained in leak-proof containers, appropriately labeled, and has a chain-of-custody form property filled out.

- Because asbestos is essentially immobile in soil, it need not be placed in a hazardous waste landfill. A sanitary landfill is sufficient provided that the disposed RACM is covered at the end of each operating day with 6 inches (150 mm) of compacted clean soil.

1100.60 WELLS AND WATER POLLUTION

1100.61 SURFACE WATER

"ANY" construction projects involving activities and/or equipment on or near water need to have contingency plans for containment of discharges into or onto the water. 40 CFR 116 defines a discharge as: "Including, but not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping a controlled material or substance into or onto the water."

Further, 40 CFR 117 states any person in charge of a vessel or an onshore or an offshore facility shall, as soon as they have knowledge of any discharge of a controlled substance from such vessel or facility in quantities equal to or exceeding the reportable quantity, immediately notify the appropriate agency of the U.S. Government.

What Does This Mean?

Basically if you are working on, above, or around water (river, creek, lake, or pond) and discharge (spill) a listed or regulated waste, you **MUST** report this discharge and **IMMEDIATELY** take action to contain and clean it up.

Who Do We Report To?

Initial reporting shall be to the Project Manager. The Project Manager must relay this information "as soon as possible" to the Construction Division. Be prepared to give the Construction Division specifics like: who, what, where, when, how much, of what and what is being done to contain and clean it up.

Reportable Quantities

A reportable quantity depends on what has been spilled. 40 CFR 117 lists Federal requirements for Reportable Quantities (RQ's) and 567 IAC Chapter 41 contains others regulated by DEQ. Since it is almost impossible to "after-the-fact" quantify anything spilled into the water, the following will be field guidelines:

- ANY fuel or petroleum products which produce a noticeable sheen have to be reported to the Construction Division. Obviously, some discretion will have to be used since a single drop of oil will produce a sheen. One drop is probably not significant but one 3 L "drop" is.

- ANY paint or paint waste will be reportable. Again some discretion is needed, but there is very little latitude. That is why some type of emergency containment system is recommended for bridge painting projects over water.

- ALL occurrences of herbicides and/or pesticides discharged into water have to be reported.

- ANY foreign liquids such as curing compound discharged into water have to be reported.

What is Meant by Contain and Clean-up?

SSHC Subsection 107.01 notifies the contractor that we expect them to conduct their operations in a manner which minimizes potential water (and air) pollution. Further, for operations which have potential for water pollution, it is recommended to ask contractors how they plan to contain, mitigate, and remediate spills which may occur during the project.

It is strongly suggested that contractors develop a spill kit where individual "supplies" are stored in a closed, open headed 55 gallon drum. This "kit" method will assure spill containment supplies are dry, clean, and available when needed. The drum can be used to contain collected wastes for disposal. "Supplies" could include, but are not necessarily limited to:

- Containment boom. Boom (skimmer type or sorbent type) should be of sufficient length to encircle a large surface slick. Typically 82 to 115 m should be adequate.
- Floating petroleum absorbent pads. Typically two unused cases of 450 x 450 mm (10 x 10 inch) pads are adequate.
- Water skimmer (dippers) to remove floating solids.
- Emulsifying agent. Several different commercially available emulsifying agents are on the market. This chemical is typically a derivative of detergent and, when sprayed onto the surface, breaks down the surface tension and disperses an oil/petroleum slick. **(NOTE: Emulsifying agents shall be used as a "LAST" resort And then only when a slick cannot be contained or absorbed by some other means.)**
- Absorbent material such as floor dry. Typically a couple of bags are sufficient for most spills on land.
- Waste containers to accumulate and temporarily store wastes.

1100.62 WELLS

The Department of Health (DH) has developed rules for plugging and abandoning wells. The rules require that all sealed wells are to be reported by the owner to the DH within 30 days after sealing. They also require a registered well contractor to do the work. This form shall be completed by the contractor and submitted to the Construction Division for forwarding to DH. A copy of the form should be placed in the project file after being completed and signed by the contractor, and registered well contractor. A list of registered well contractors is maintained by DH.

CHAPTER NOTES:

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