

## Oil Spill Prevention & Countermeasure

### SPCC Regulations Briefing – Farm Operations

March 2010



## Farmer Fined for SPCC Regulatory Violations

Thursday, February 18, 2010 11:29 AM

An Idaho farmer will pay a fine of \$9,500 for failure to have an oil spill prevention plan in place for his storage tanks.

Edward A. Smith Farms agreed to pay the fine for violation of federal SPCC regulations under the Clean Water Act.

The farm is adjacent to Michaud Creek, a tributary to the Portneuf River and American Falls Reservoir. ... EPA inspected the farm in 2008 after receiving a complaint.

Inspectors observed several violations, including failure to prepare and implement an adequate spill prevention plan. The oil tanks on the farm were built for underground storage but were being used for aboveground storage. The farm has a storage capacity of 30,000 gallons.

The regulations apply to all petroleum products and any kind of oil, including mineral oil and animal fat.



## Course Objective



- To introduce attendees to the Oil Spill Prevention, Control and Prevention Regulations EPA 40 CFR 112
- To briefly discuss pending regulatory litigation
- To highlight changes to the SPCC plan regulations which were effective August 2002
- Identify key requirements of an oil storage plan with emphasis on farm related operation
- Identify critical considerations for preparing a SPCC plan
- Identify resources available to assist you in preparing a SPCC plan for a farm related operation



## Applicable Pollution Control Laws, Rules & Regulations



## Rules & Regulations – 40 CFR 112



### US EPA Oil Pollution Prevention Regulation

- EPA, as delegated by the President, to establish "requirements to prevent discharges of oil \* \* \* from onshore and offshore facilities, and to contain such discharges \* \* \*." 33 U.S.C. 1321(j)(1)(C).
- Typically referred to as the oil SPCC plan regulations
- Promulgated in 1973 under the authority of the FWCAA / CWA
- Became effective January 10, 1974 – first SPCC plans



- Sites with >1320 gallons (including containers such as drums) of capacity must prepare a SPCC plan
  - Secondary Containment – To Control Any Spilled Volume
  - Security Provisions – Prevent Vandalism
  - Routine and Periodic Storage Container Inspections
- Last major revision was in July 2002



## Other Federal Regulations



### Resource Conservation and Recovery Act (RCRA)

- Typically referred to as hazardous waste regulations

### Emergency Planning and Community Right to Know Act (EPCRA)

- Additionally, releases must be reported to appropriate local emergency planning commissions (LEPC) and state emergency response commissions (SERC)

### Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

- Typically referred to as Superfund regulations
- While petroleum products such as gasoline and oil are excluded from this rule but are covered under the Clean Water Act and UST/AST regulations



## US Environmental Protection Agency



Title 40 of the Code of Federal Regulations (CFR) part 112 outline oil spill prevention control & countermeasure (SPCC) plans requirements  
 Incorporated revisions proposed in 1991, 1993, and 1997



- Published Regulations On July 17, 2002
- Revised Regulations 8 times since the 2002 changes Most recent on November 13, 2009
- Determined in June 2009 that same implementation date for farms as for other facilities
- Facility Upgrades & Plans due **November 10, 2010**
- New facilities must have plan in place prior to start of operation

The compliance dates were deferred 6 time from the original deadline



## Federal vs. State Jurisdiction



### US Environmental Protection Agency



### North Dakota Department of Health

Section 311 of the Clean Water Act (the Congressional enabling legislation that created the need for the SPCC regulations) does not permit EPA to delegate this program to the States. US EPA has "primacy."

Some States have enacted a parallel set of spill prevention rules, with additional State specific requirements.

North Dakota does not have a State specific set of oil spill prevention regulations.



## North Dakota Department of Insurance Petroleum Tank Release Compensation Fund



To apply for reimbursement for remediation costs from the Fund, your facility must be in compliance with all applicable regulations.

This requirement includes the preparation of a SPCC Plan and compliance with its provisions.

Farm and ranch underground tanks greater than 1100 gallons must be registered. Underground tanks less than 1100 gallons and all aboveground tanks are excluded if they are used for non-commercial purposes (i.e. not offered for sale to off site entities.)



## Rules for Different Types of Operations



The EPA have developed different rules for different types of operation

- Production
- Non-production

As well as source of oil

- Mineral/Petroleum Oil
- Plant/Animal Oil

Why could I care about plant and animal oil rules?



Can anyone say BIODIESEL?



## Definitions 40 CFR 112.2



### Facility

Any mobile or fixed, onshore or offshore building, property, parcel, lease, structure, installation, equipment, pipe, or pipeline (other than a vessel or a public vessel) used in oil well drilling operations, oil production, oil refining, oil storage, oil gathering, oil processing, oil transfer, oil distribution, and oil waste treatment, or in which oil is used, as described in Appendix A to this part. The boundaries of a facility depend on several site-specific factors, including but not limited to, the ownership or operation of buildings, structures, and equipment on the same site and types of activity at the site.

Contiguous or non-contiguous buildings, properties, parcels, leases, structures, installations, pipes, or pipelines under the ownership or operation of the same person may be considered separate facilities.



## Definitions 40 CFR 112.2



### Farm

A farm is a facility on a tract of land devoted to the production of crops or raising of animals, including fish, which produced and sold, or normally would have produced and sold, \$1,000 or more of agricultural products during a year.

(Issued December 2006 rulemaking)



## Definitions 40 CFR 112.2

### Bulk Storage Container



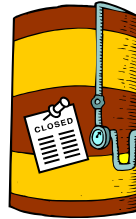
any container used to store oil. These containers are used for purposes including but not limited to the storage of oil prior to use, while being used, or prior to further distribution in commerce...

- A tank is a bulk storage container
- Containers smaller than 55 gallon are not regulated



## Definitions 40 CFR 112.2

### Permanently Closed



means a container or facility for which:

- All liquid and sludge has been removed from each container and connecting line; and
- All connecting lines and piping have been disconnected from the container and blanked off,
- all valves (except for ventilation valves) have been closed and locked, and
- conspicuous signs have been posted on each container stating that it is a permanently closed container and noting the date of closure.



## Who is Regulated?

- Non-Transportation Related, and
- Drill, produce, gather, store, process, refine, transfer, distribute, use or consume oil or oil products, and
- Can **reasonably** be expected to discharge oil in quantities that may be harmful into or upon **navigable waters of the United States**, adjoining shoreline, or waters of the continuous zone, or in connection with the activities under the Outer Continental Shelf Lands Act or Deepwater Port Act, or affecting certain natural resources

Definition of "waters of the US" was considerably narrowed November 2009 as a result of a legal suit, but efforts are underway to restore a very broad definition to include all streams and creeks, prairie potholes, etc.



## What Must a Regulated Facility Do?

- Prepare and implement a Spill Prevention, Control and Countermeasure (SPCC) Plan
- The plan must be reviewed and certified as adequate and in compliance with the EPA's rules by a professional engineer (PE) unless the facility qualifies as a "Tier I" or "Tier II" facility (Most sites with 10,000 gallons or less of oil capacity will not require a professional engineer to be involved.)
- Implement the Plan, including carrying out the spill prevention and control measures for the type of facility or operations, such as measures for containing a spill (e.g., berms).
- If containment measure is unable to implement containment measures, the facility must develop and incorporate a **strong** spill contingency plan into the SPCC Plan – typically not a concern for farm operations in North Dakota.
- Facility owners/operators must conduct **employee training** on the contents of SPCC Plan.



## Annual "Oil Discharge Briefings" To Include

- Equipment procedures to prevent the discharge oil
- Discharge procedure protocols – spill response
- Applicable pollution control laws, rules and regulations
- General facility operations
- Contents of the facility's SPCC Plan
- Recent Spills and New precautionary measures



Content and duration at the discretion of the employer based on industry standards

Training is required for only "oil handling" employees

**Three year** record retention



## Contents of the SPCC Plan



## Site Specific SPCC Plan

Hardcopy of SPCC Plan must be:



- On-site if location attended 4 (rather than the prior requirement of 8) or more hours a day
- Otherwise located at nearest office location
- Available for inspection during business hours
- Identify the person responsible for oil spill prevention
- Signed/authorized by management agent
- Revise within 6 months to apply significant new technology
- Specific enough to describe how each regulatory section is satisfied
- Follow specified legislated sequence to alternative provide a cross reference sheet



## Facility Operator to Review Plan

**OWNER-OPERATOR REVIEW AND LOG (§112.50)**

In accordance with 40 CFR 112.50, a review and update of the SPCC Plan is conducted at least once every five years. The requirements are as follows: **Review of Plan § 112.50**

As a result of each review and evaluation, **Plans of Facility** will update the SPCC Plan within six months of the review to include more effective prevention and control technology if (1) such technology will significantly reduce the likelihood of a spill event from the facility, and (2) if such technology has been field proven at the time of review.

There completed review and evaluation of the SPCC plan for <b>Plans of Facility # Facility City, ST, and County</b> on each month the Plan is checked.			
Date Reviewed	Reviewed By	Remarks	Next Review Due
There completed review and evaluation of the SPCC plan for <b>Plans of Facility # Facility City, ST, and County</b> on each month the Plan is checked.			
Date Reviewed	Reviewed By	Remarks	Next Review Due
There completed review and evaluation of the SPCC plan for <b>Plans of Facility # Facility City, ST, and County</b> on each month the Plan is checked.			
Date Reviewed	Reviewed By	Remarks	Next Review Due

Any technical amendments to the SPCC Plan shall be certified by a Professional Engineer within six months after a change in the facility design, construction, operations, or maintenance in any way which may affect the facility's potential for the discharge of oil into or upon the navigable waters of the United States or adjoining territory. Register any amendment or revision as possible, but not later than 60 calendar days following preparation of any amendment.

Review must be conducted at least every 5 years (previously every 3 years)

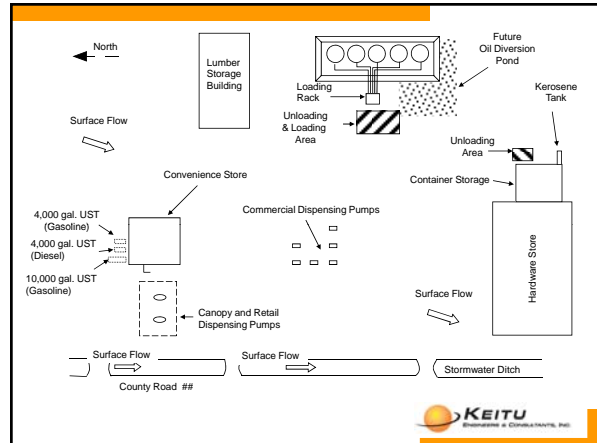
Must log both the review and action taken (new requirement)



## Bulk Fuel Storage & Distribution – Facility Operation Example



- This facility stores bulk receipts of petroleum in above-ground tanks. Storage may include drummed quantities as well as above-ground tanks.
- Bulk quantities of product are delivered to this location from a pipeline terminal location via cargo tank trucks.
- Downstream distribution occurs via tankwagon delivery and/or retail pump dispensers to motor vehicles and portable containers.



## Spill Reporting Form - §112.7(a)(4)

Our SPCC plan contains a form which outlines the information to be reported to the regulatory agency, should a call be necessary.



**INCIDENT REPORT**

*Instructions: Fill in blanks. This form is to be filled out and distributed as soon as practical after an oil release is discovered and initial response to the release has been initiated.*

Event Facility Address and Phone Number: \_\_\_\_\_ Facility Name: \_\_\_\_\_  
 Facility Address: \_\_\_\_\_ Facility City, State, ZIP Code: \_\_\_\_\_  
 (989) 325-0200

Date of Release:	Time of Release:
Type of Material Spilled:	Quantity Spilled:
Event Location of Spill:	
Witnesses, Personnel, Inspector:	
Estimated Quantity in Release:	
Source and Cause of Release:	
System of Actual and Potential Water Pollution:	

This information should be compiled before the call(s) are made to help define the type of response required.



## Emergency Response Procedures

### SPILL RESPONSE - DUTY CARD SITE EMPLOYEE

Facility employees have oil spill response responsibilities in the event of oil spill or other release. The following action sequence will assist this individual in performing their task as required by the site's Spill Prevention, Control and Countermeasure (SPCC) Plan.

Completed	Description	Time
	Received notice an oil spill or discharge has occurred	
	Contacted the designated Incident Commander	
	Directed personnel to shutdown electrical power to dispensing pumps	
	Arrived at the scene	
	Shutdown all operations and maintenance activities in the area	
	Shutdown all ignition sources, including vehicle operation	

Refer to the specific discharge response procedures in the SPCC plan (or on your duty card – if appropriate). Site specific contact names and phone numbers are also listed there.



## Facility Specifics

- **Facility Transfer Operations**
  - Schedule and conduct piping visual leak inspection
  - Conduct periodic integrity testing with consideration of industry standards and procedures subject to the approval of the professional engineer
- **Facility Bulk Storage Containers**
  - Material of construction compatible with oil and conditions
  - Secondary requirement including precipitation freeboard
  - Drainage from undiked areas in catchment basin or holding pond
  - Inspect each container including foundation periodically
  - **Log inspections**



## Monthly Facility and Container Inspections

Inspections Must be Documented & Forms Retained for 3 Years

MONTHLY FACILITY INSPECTION REPORT & CHECKLIST	
Date:	Time:
Inspector:	
ITEM	COMMENTS
<b>Drainage</b>	
Any noticeable oil sheen on runoff?	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable
Any noticeable oil sheen on water in containment area?	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable
Any noticeable water/steam in containment area?	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable
Oil-water separator system(s) working properly?	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable
<b>Above Ground Storage Tanks</b>	
Tank surfaces checked for signs of leakage?	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable
Tank foundation intact and level?	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable
Tank surface condition without significant rusting or pitting?	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable
Yeast not obstructed?	<input type="checkbox"/> Acceptable <input type="checkbox"/> Not Acceptable

The site **must identify who** is responsible for this inspection.



## Discuss More Stringent State Rules - §112.7 (j)

### F. Conformance to Other Discharge Management Requirements [§112.7(j)]:

As of 1996, North Dakota has not enacted specific regulations targeted at ASTs, but has incorporated by reference applicable National Fire Prevention Association NFPA Codes 30 and 30A - the Flammable and Combustible Liquids Code and the Automobile and Marine Service Station Code, respectively.

There are presently no local Name of City or Name or County requirements pertaining to storage tanks at the site.

"... include in your Plan a complete discussion of conformance with the applicable requirements and other effective discharge prevention and containment procedures listed in this part or any applicable more stringent State rules, regulations, and guidelines."



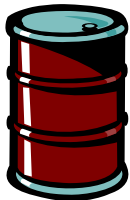
## Design, Operations and Maintenance

- **Design: Meet Industry Design Specification**
  - Shell Thickness
  - Tank Spacing
  - Alarms
- **Operations: Conform to Industry Loading Procedures**
  - Vehicle Parking
  - Record Keeping
- **Maintenance: Inspections per Industry Practices**
  - Testing after repairs & alterations
  - Routine Inspections
  - Record Keeping



## Sample Policy

### Drummed Materials



Since drums and IBC (intermediate bulk containers) are containers, they must have secondary containment and be regularly and periodically inspected.

To avoid an "extensive periodic" inspection, it is the policy of this location not to reuse drums. We will rely on the pre-transportation inspection of the supply vendor.

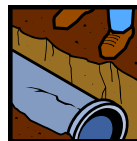
They should be removed from the site promptly otherwise they are subject to all the container requirements.

Empty drums and should therefore be disposed of properly or sent to a reclamation facility and NOT RE-REUSED.



## Underground Piping

### Repair or Replacement



As of August 16, 2002 all **new** underground piping at facilities must meet the following new requirement:

**"Protect all piping appurtenant to the facility from corrosion, such as with protective coatings or cathodic protection."**

Double walled piping may be an acceptable alternative to coating and/or wrapping and/or providing cathodic protection to new underground piping.



## Site Specific Warning

### WARNING

ABOVEGROUND PIPING  
EXISTS  
AT THIS SITE

#### Above-ground piping exists at this facility

- Piping within and at the loading and unloading areas
- Clear vehicle access is provided for your use.
- All are clearly visible from vehicle drivers seat, but may be concealed by snow drifts in winter time.
- Point out these hazards to new employees



## Secondary Containment

### Floor now specifically included

- Sandy Soil - NOT OKAY
- Compacted Clay – OKAY – Per Recent Conversation with EPA VIII
- Plastic Liner – OKAY – Minnesota has exceptions – Required in National Parks
- Asphalt Lined - EXCELLENT
- Concrete - EXCELLENT

- Size Must Now Include Precipitation Freeboard which is between 3 – 6 INCHES (ND 24 hour max event) for rain volume if uncovered outdoors
- Not Required For OIL FILLED EQUIPMENT or "nurse tanks"



## Petroleum Oil Distribution Facility Specifics

### Facility Drainage



- Close and seal at all times drains of dikes or drains except when drawing uncontaminated rainwater
- Prior to drainage, inspect the diked area, remove accumulated oil and return it to storage or dispose of it in accordance with legally approved methods
- Inspect regularly for accumulation of oil that may have occurred
- Promptly remove any accumulation of oil
- Log discharges



## Record Keeping & Forms

Discharge from containment structures must be documented and forms retained for 3 years

DRAINAGE DISCHARGE REPORT FORM					
UNIT	DATE	TIME START	TIME STOP	DESCRIPTION	OPERATOR NAME
<input type="checkbox"/> Separator				<input type="checkbox"/> Clean-No Sheen <input type="checkbox"/> Light Sheen	
<input type="checkbox"/> Sump				<input type="checkbox"/> Free Oil <input type="checkbox"/> See Remarks	
<input type="checkbox"/> Separator				<input type="checkbox"/> Clean-No Sheen <input type="checkbox"/> Light Sheen	
<input type="checkbox"/> Sump				<input type="checkbox"/> Free Oil <input type="checkbox"/> See Remarks	
<input type="checkbox"/> Separator				<input type="checkbox"/> Clean-No Sheen <input type="checkbox"/> Light Sheen	
<input type="checkbox"/> Sump				<input type="checkbox"/> Free Oil <input type="checkbox"/> See Remarks	
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<input type="checkbox"/> Separator				<input type="checkbox"/> Clean-No Sheen <input type="checkbox"/> Light Sheen	
<input type="checkbox"/> Sump				<input type="checkbox"/> Free Oil <input type="checkbox"/> See Remarks	
<input type="checkbox"/> Separator				<input type="checkbox"/> Clean-No Sheen <input type="checkbox"/> Light Sheen	
<input type="checkbox"/> Sump				<input type="checkbox"/> Free Oil <input type="checkbox"/> See Remarks	



## Pesticide Application Equipment

- Exempt equipment includes:
  - Ground boom applicators
  - Airblast sprayers
  - Specialty aircraft that apply measured amounts of pesticides to crops and/or soil
  - Related mix containers
- Exemption applies to all pesticide application equipment and related mix containers, regardless of ownership or where used



#### Rationale:

Pesticides are regulated under FIFRA; additional regulation of pesticide containers and application equipment under the SPCC rule is not necessary.

## Residential Heating Oil Tanks

- Residential heating oil containers at single-family residences are exempt from the SPCC rule.
  - Includes general rule applicability and capacity calculation requirement
- Applies to containers that are:
  - Aboveground or completely buried
  - Located at a farm or single-family residences
  - Used solely to store heating oil used to heat the residence
- SPCC requirements continue to apply to oil containers used to heat other non-residential buildings within a facility.
- EPA did not intend to regulate residential uses of oil (i.e., those at non-commercial buildings) under the SPCC rule.



Source: <http://www.epa.gov/ceppo/web/content/spcc/>

## Farm Exemption Removed

- Farms with over 1,320 gallons of "oil" storage have to comply with the SPCC regulations by Nov. 10, 2010.
- Including secondary containment and a written plan.
- May use the Tier I or Tier II self-certification plan.



## Farm Nurse Tanks

- Nurse tanks are mobile/portable containers used at farms to store and transport fuel for transfers to or from farm equipment and to other bulk storage containers.
- The definition of "mobile refueler" includes nurse tanks, as well as non-road licensed refueling equipment that are used to refuel farm equipment in the fields.
- Nurse tanks are exempt from sized secondary containment.
- Must meet general secondary containment requirements at §112.7(c)



Source: <http://www.epa.gov/ceppo/web/content/spcc/>


## Tier I & II Qualified Facilities

If the facility has...	And...	And the facility has...	Then:
10,000 U.S. gallons or less aggregate aboveground oil storage capacity;	Within any twelve-month period, three years prior to the Plan certification date, or since becoming subject to the SPCC rule if in operation for less than three years, there has been: (1) No single discharge of oil to navigable waters or adjoining shorelines exceeding 1,000 U.S. gallons; and (2) No two discharges of oil to navigable waters or adjoining shorelines each exceeding 42 U.S. gallons in any 12-month period	No individual aboveground oil containers greater than 5,000 U.S. gallons;	<b>Tier I:</b> Complete and self-certify Plan template (Appendix G to 40 CFR part 112) in lieu of a full PE-certified Plan.
		Any individual aboveground oil container greater than 5,000 U.S. gallons;	<b>Tier II:</b> Prepare self-certified Plan in accordance with all applicable requirements of §112.7 and subparts B and C of the rule, in lieu of a PE-certified Plan. (Cannot use the Appendix G Template)

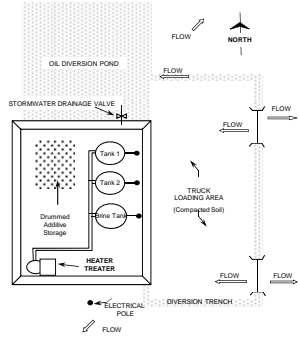
Source: <http://www.epa.gov/ceppo/web/content/spcc/>

## What Must I do?


- Install secondary containment around tanks and drum storage areas including precipitation allowance
- Install secondary containment sufficient to hold most likely spill event volume (approximately 100 gallons – no allowance for precipitation required) in areas where oil based liquids are regularly transferred or dispensed
- Prepare a oil spill prevention, control and countermeasure plan consistent with EPA rules
- Quarterly visually inspect storage containers, piping, etc for evidence of leakage – repair as necessary
- Routinely visually dikes to assure they intact and retain adequate retention volume
- Annual training of "oil handling" employees



## Bulk Storage Containers - §112.9(c)




- Not use a container for the storage of oil unless its material and construction are compatible with the material stored and the conditions of storage. Steel is okay for all types of oil.
- Provide all tank battery, separation, and treating facility installations with a secondary means of containment for the entire capacity of the largest single container and sufficient **freeboard** to contain precipitation. You must safely confine drainage from undiked areas in a catchment basin or holding pond.



## Secondary Containment Alternatives

**"Spill Pallet"**




**For "General Facility" Containment**

- Dikes, berms, or retaining walls sufficiently impervious to contain oil
- Curbing
- Culverting, gutters, or other drainage systems
- Weirs, booms or other barriers
- Spill diversion ponds
- Retention ponds
- Sorbant materials

**For Containment of "Bulk Storage Containers"**

- Dikes
- Containment curbs
- Pits



## Secondary Containment Size

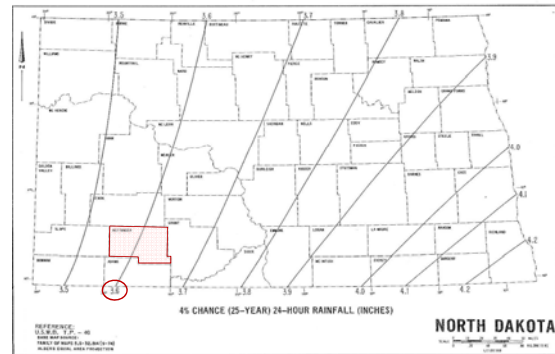


Containment structures must be sized to contain sufficient freeboard to contain precipitation in addition to the volume from the largest container within.

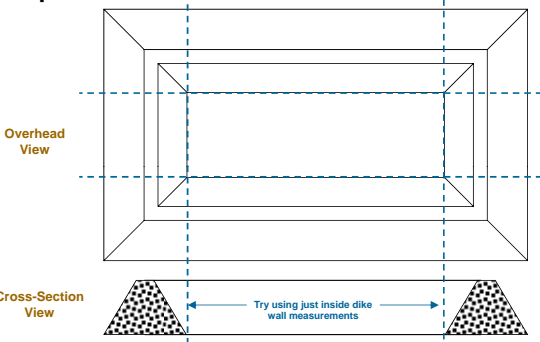
Consider volume from a 25-year 24-hour event or other appropriate event, depending on the site specific factors such as uncovered or outdoors vs. inside



## ND 25-Year 24-Hour Rainfall Event



## Simplified Dike Measurements



## Calculating Containment Volume

- Calculate "Gross" Capacity
  - Width in feet X Length in feet X Height in feet X 7.48 = Containment Volume in GALLONS
- Calculate "Precipitation" Freeboard"
  - Width in feet X Length in feet X Rain in inches X 0.623 = Freeboard Volume in GALLONS
- Calculate "Equipment Displacement" - assume only one tank leaks
  - (Total Tanks -1) X Height in feet X Diameter in feet x Diameter in feet X 5.87 = Displacement Volume in GALLONS

**Net Capacity = Gross Capacity – Freeboard – Displacement**

- Net Capacity must be greater than the volume capacity of the largest container

Keitu Engineers & Consultants, Inc.

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- Emergency Management**  
Conduct risk assessments and evaluate alternatives to prevent and prepare to respond to both expected and unexpected events.

## Questions ?....

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