

2000 Pine Lake Tornado

Steve Johnson

Waste Services Manager, AECOM

February, 2021

Pine Lake Tornado



- July 14, 2000 F3 tornado struck the Green Acres campground and trailer park at Pine Lake, Alberta
- Over \$13,000,000 in damages, with 12 dead and over 100 injured
- The heaviest damage occurred in a 500 metres central corridor. Damage assessment suggests that winds within the central corridor reached 300 kilometres per hour (190 mph). Weather Watchers reported hail as large as baseballs.

Reference: Wikipedia

Picture: Red Deer Advocate

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- Red Deer County declared the Pine Lake site a state of local emergency to bring in resources
- Red Deer Search and Rescue membership callout within a few hours of event
- Alberta Environment staff members of Red Deer Search and Rescue: Steve Johnson, Karen McCallion, Grant Sprague

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- July 15 – general assessment (dangerous goods, fuels, etc) for immediate containment
- Red Deer County, David Thompson Health Region, Alberta Government response oversight
- July 18, AEP appointed to lake clean up
- Solid Waste Approval
 - Ridgeview Landfill may not have capacity to manage all the debris
 - Emergency amendment processed in 3 days with conditions on a new C&D cell, and what materials not permitted to be landfilled
- Lake Clean up
 - Helicopter inspection to locate debris
 - Planned resources needed (boats, bins, haz mat, etc.)
 - Lake sampling for bacteriological, chemical, and physical parameters by Health Region and AEP.
 - Debris removed from bottom of lake

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- Lake Clean up standards
 - How clean is clean?
 - Provincial and County departments established criteria
 - Debris removal by impacted zone
 - Level 1 – raking/diving/sonar
 - Level 2 – physical inspection by wading and sonar
 - Level 3 – removal of visible debris and sonar
- Northern Underwater Systems, Provincial resources

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Table 2. Preliminary planning for Pine Lake clean-up.	
Liaison with Victim Services (equipment etc.)	
Storage (public/property owner assistance; hazardous materials)	
Disposal (14 yard bin; dispose at landfill)	
Safety Plan (contractor)	
Access (dive boats and garbage)	
Depth of Search/Recovery – Our Standard? (on shore, in water)	
Dollars (costs from Disaster Services)	
Schedule (contractor ASAP, complex job – need right people/equipment)	
Regulatory Requirements:	Water Act Approval
	Department of Fisheries and Oceans
	Bed and Shore (Licence of Occupation)
	Fish/Wildlife Habitat Concerns (Provincial)
Water Siphon Pipe	
Aerial Extent	
One General Contractor - may hire subcontractor(s) vs. Several Contractors	
Contractor Supervision	
Containment of Debris in Water	
Control of Shore Access	
Volunteers – yes/no?	
Media Contact	
Associated Agencies – Alberta Environment, Red Deer County, Public Health	

- Sampling program (HC, bacteriological, Physical)
- HC boom in marina
- Over 50 overturned and submerged boats removed
- Lots of debris caught in reed beds. Not permitted to damage reed beds (wading and car topper boats only)
- Lake clean up done July 31, letter so resort owners could reopen
- 1200 yrd³ of debris removed

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- Regulatory Process:
 - Meeting with County on possible locations for waste disposal
 - Emergency provision of the Environmental Protection and Enhancement Act implemented
 - Steve Johnson, Karen McCallion with legal support from Grant Sprague responsible for Approvals to develop a Class III landfill cell at Ridgeview Landfill

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FILE COPY



Environmental Services

#304, 4920-51 Street
Red Deer, Alberta
T4N 6K8

Telephone 340-7739
Fax 340-5022

46896-00-01

July 19, 2000

Mike Savard
Operations Services Director
County of Red Deer
4758-32 Street
Red Deer, Alberta
T4N 0M8

Re: Amendment to Approval No 46896-00-00 – One Time Class III cell for Pine Lake Tornado Disaster Material Disposal

Steve Johnson, Regional Municipal Engineer Alberta Environment has recommended that the location immediately north of the burn pits is an acceptable location as it is a natural low area that can be bermed to enclose the waste. The toe of the north berm can be constructed outside of the 50 metre buffer area and may still have capacity as per Red Deer County's volume estimate. This area, if used, will not impact future class II cell development. A sketch is attached for your reference.

As provided by section 65(2) and 69(3)(a) of the "Environmental Protection and Enhancement Act" (EPEA), I authorize the immediate one time construction of a new class III landfill cell at the Pine Lake Landfill site subject to the following conditions. Further I hereby waive all of section 3(1) of the "Approvals and Regulations Procedure Regulation" under EPEA as authorized under section 3(2) of these same regulations.

Conditions:

1. A letter confirming your request to construct the one-time class III cell at Ridgeview Landfill for disposal of inert materials left by the July 14, 2000 tornado shall be sent to the Director in due course.
2. The cell shall be constructed in the location as documented on the attached drawing.
3. Documentation of the salvage operation at Pine Lake shall be provided to the Director. The documentation shall include how materials such as propane bottles, batteries, recyclable materials (steel, tires, etc.), hazardous materials, refrigerants, etc. were separated and transported/deposited too.

4. Non-inert material shall not be accepted into the Class III cell.
5. Documentation of the screening process at Ridgeview for this cell shall be provided to the Director.
6. Cross sections of the proposed cell III area shall be provided to the Director.
7. Stripping of topsoil and subsoil shall be completed.
8. The base of the class III cell shall be above the groundwater table.
9. Cross sections of the cell III area after topsoil and subsoil stripping shall be provided to the Director.
10. Berms shall be constructed to contain the refuse.
11. Surface drainage shall be rerouted from the burn pits so it will not discharge into the class III cell.
12. The cell cap shall have 60 centimetres of compacted clayey soils and sufficient topsoil and subsoil to establish grassy vegetation and be sloped adequate to prevent ponding.
13. A Construction report, with pictures, documenting stripping, berm construction, refuse disposal, cell reclamation, and construction and reclamation as-builts shall be submitted to the Director.
14. A record of the tonnage of material accepted shall be provided to the Director.
15. The installation of a minimum of three groundwater-monitoring wells that are completed below the refuse base.
16. All conditions shall be completed on or before October 15, 2000.

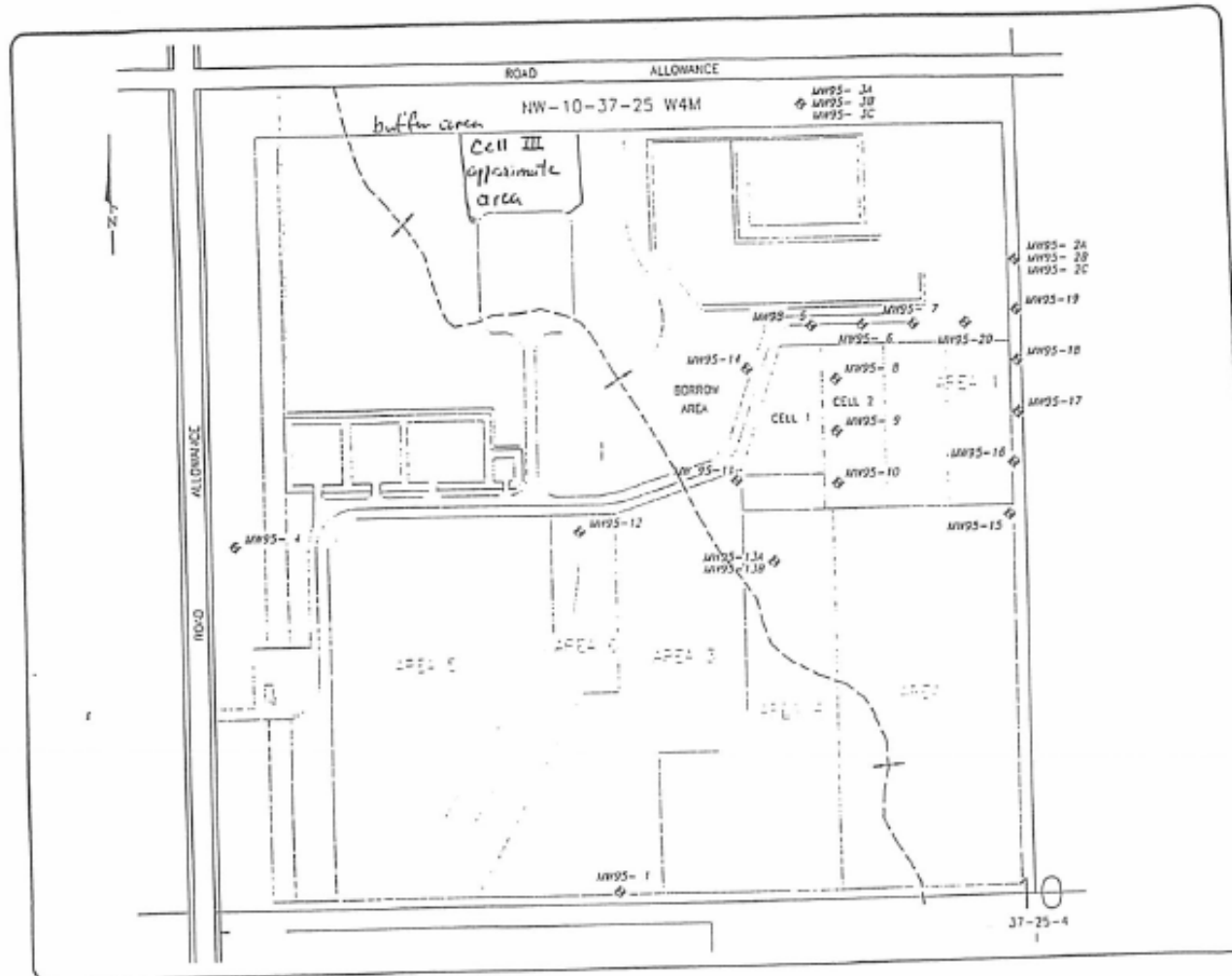
Please call me at 340-7722 or Steve Johnson at 340-7739 if you have any questions regarding the above specifications

Regards,

Karen McCallion,
Designated Director Under the Act

cc: S. Johnson
D. Lloyd
D. Tupper

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CENTRAL ALBERTA REGIONAL
WASTE AUTHORITY

RIDGE VIEW
WASTE RECOVERY FACILITY

NW 1/4 10-37-25 W4M

LEGEND

MW95-17
MONITORING WELL

Surface Drainage Ditch

100 METRES
1:4000

MONITORING WELL
LOCATION PLAN

Omni-McCann Consultants Ltd.
2000 10th Street, Suite 100, Calgary, Alberta T2C 1P4

FIGURE 2

Steve Johnson, AENV
July 18, 2000

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Landfill Considerations

- Existing landfill cell not considered appropriate for the disposal of debris
 - Amount of debris would have compromised cell capacity and ability to manage MSW.
 - No time to construct new MSW cell
 - MSW cell design: double composite clay liner with primary and secondary leachate collection systems
- **Solution**
 - construct a dedicated C&D cell to Class III standards in area not designated for MSW cells
 - Required AENV emergency approval.

Operations Considerations

- All waste entering landfill weighed and appropriately tracked
- Dedicated equipment and staff mobilized to manage debris disposal
- All loads were inspected to ensure that only appropriate debris was accepted and buried, required dedicated person to inspect all loads
- No putrescible waste was accepted, no green waste, no hazardous or contaminated waste
- No auto bodies, no bulk scrap metal (recycled), campground so had to watch for propane tanks, cylinders etc.
- All freon containing appliances had to be removed

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Debris Support

- Hazco Environmental Services
- Harpers Metals
- Woody's RV

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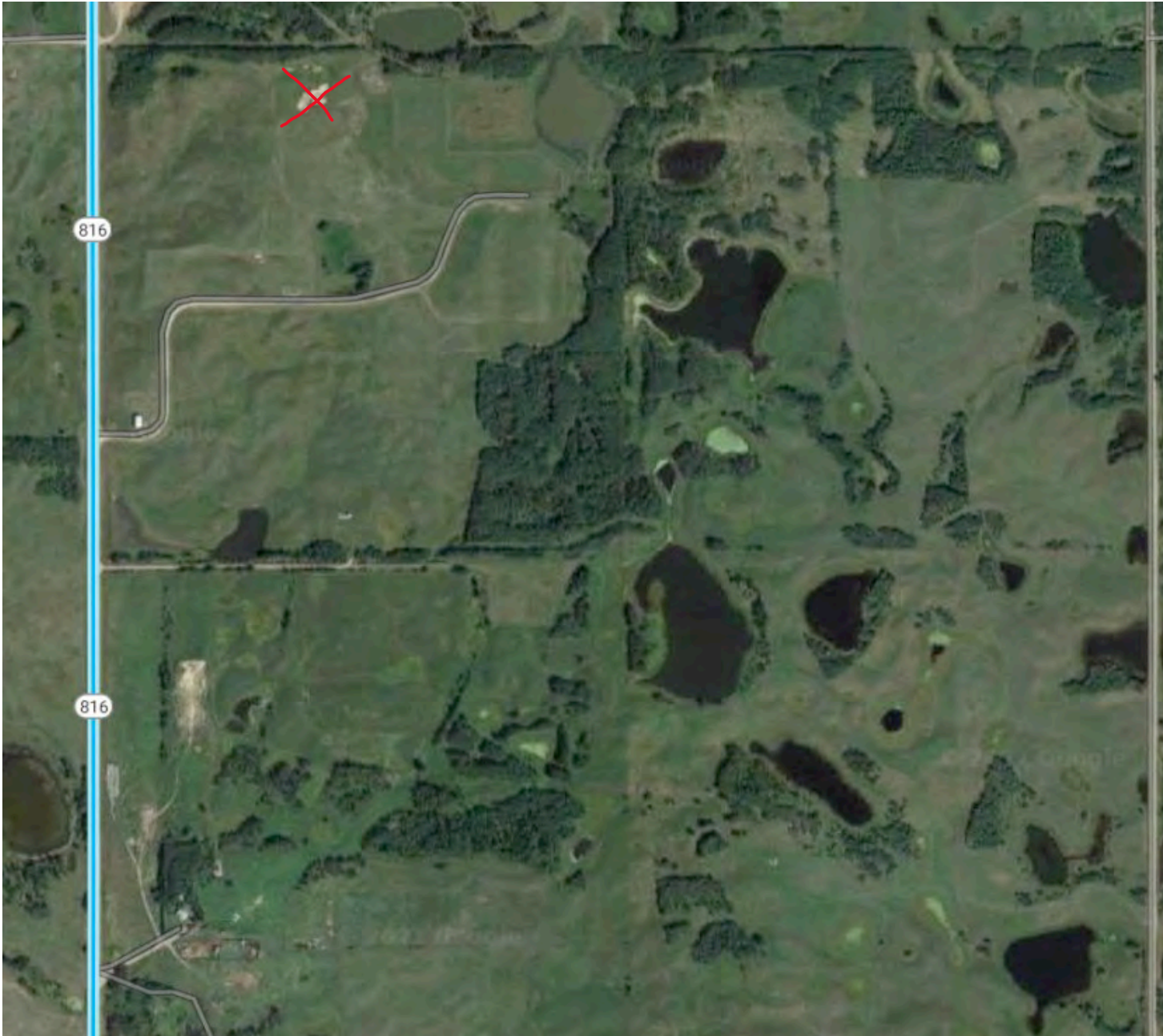
- Lessons learned:
 - Emergency response coordination; there wasn't a coordinated regional emergency response plan and no clear understanding of government resources
 - Setup incident command centre with firm lines of communication
 - Provide training and orientation
 - Formalize who is lead responder
 - Communication improvements between agencies and industry
 - Newer equipment (radio's, patrol boats)
 - Media contact

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- References:
- Alberta Environment Role in the Pine Lake Tornado Cleanup
- Report on the role of Alberta Environment at the July 14 2000 Pine Lake Tornado (Lessons Learned)

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Questions?