



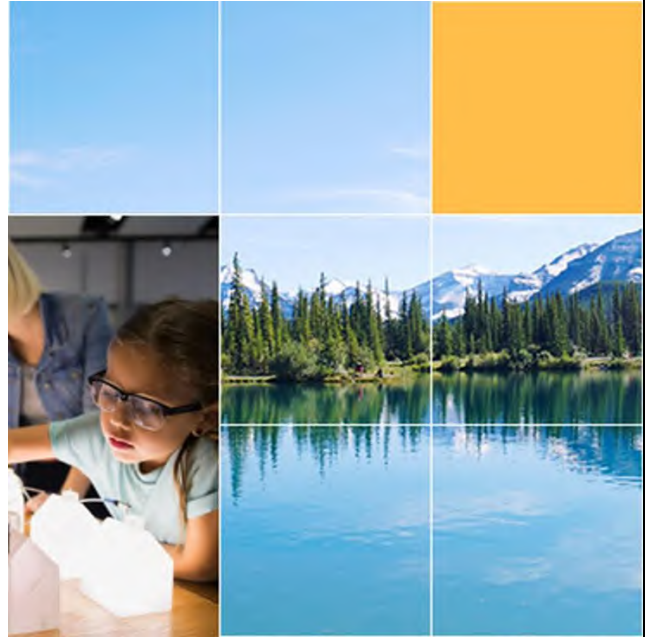
Régie de l'énergie
du Canada

Canada Energy
Regulator

Damage Prevention Data Analysis: **Pacific Region**

Debbie Clyne
DP Workshop
November 9 2023

Canada



Scope of Work

- **Perform analysis & analytics on factors associated with federally regulated pipelines work practices, focusing on Pacific Region**
 - **Analysis** – Analyze reported DPR contravention events & UA events to look at factors, trends, root causes, gaps & indicators to gain knowledge on occurring & recurring contravention events.
 - Some data across Canada has been included where possible
 - **Analytics** – Work towards improving existing practices in managing Unauthorized Activity reports, managing risks & in collecting data.

DPR = Damage Prevention Regulations

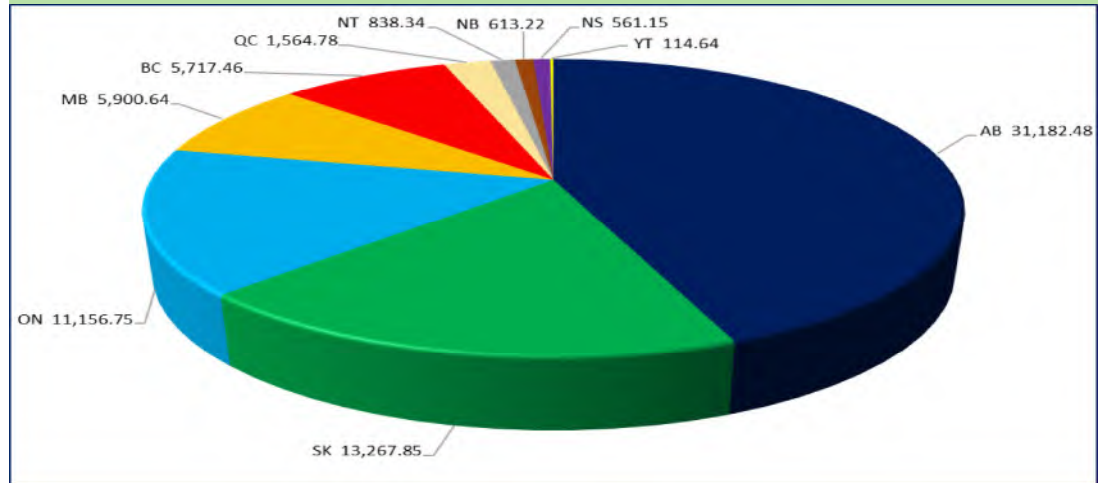
UA = Unauthorized Activities

Approach

- **Analyze existing Damage Prevention data derived from ORCA**
- **Key inputs: Maher Natsheh, Data Analyst, Debbie Clyne, Research & Innovation**
- **Accessed DP system & database used by CER (ORCA)**
- **Data broken into:**
 - UX (1999 – Nov 2020), eliminated due to incompatibility of questions and
 - DPR (Nov 2020 – present). The questions & data points don't match = use of DPR only
- **Unauthorized Activities (UAs) include events coded as UXs (before Nov 2020) & DPRs (Nov 2020 onwards)**
- **Reports were made on reported UAs up to April 30, 2023**

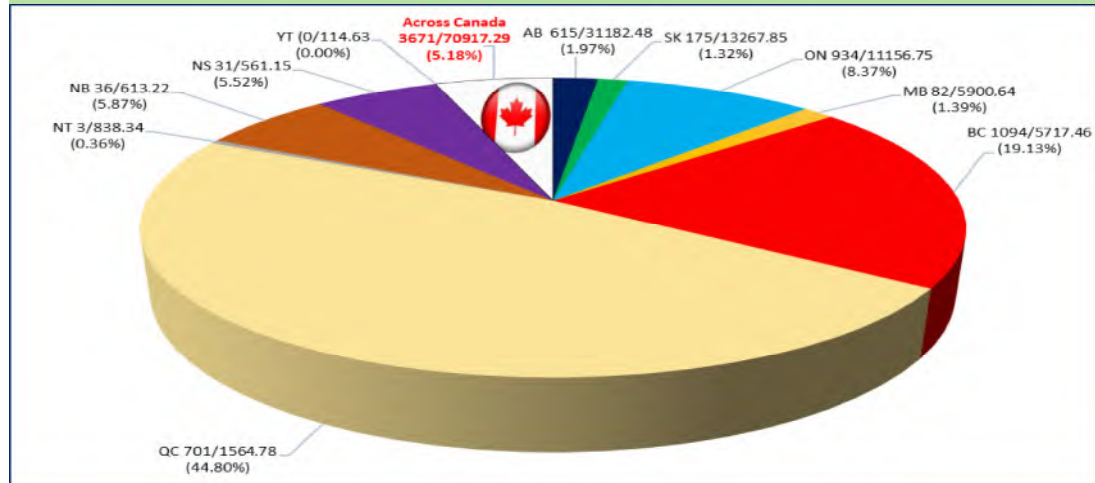
I'd like you to note any & all patterns developing.

Pipeline Length by Province (km)



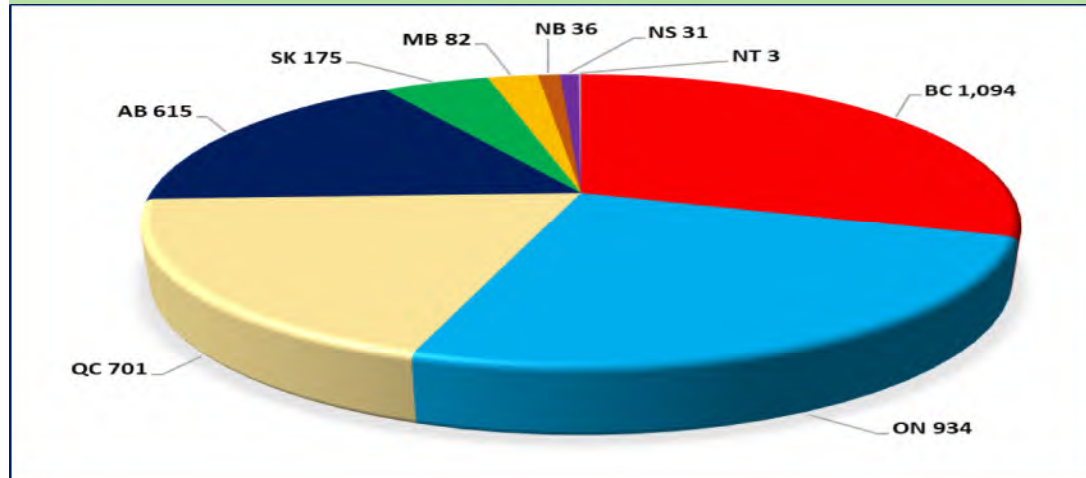
AB has the majority of pipelines in Canada, followed by SK & ON. Notice QC & see the next few slides

% of Total UAs to Pipeline Length in Canada by Province (1999 – April 30, 2023)



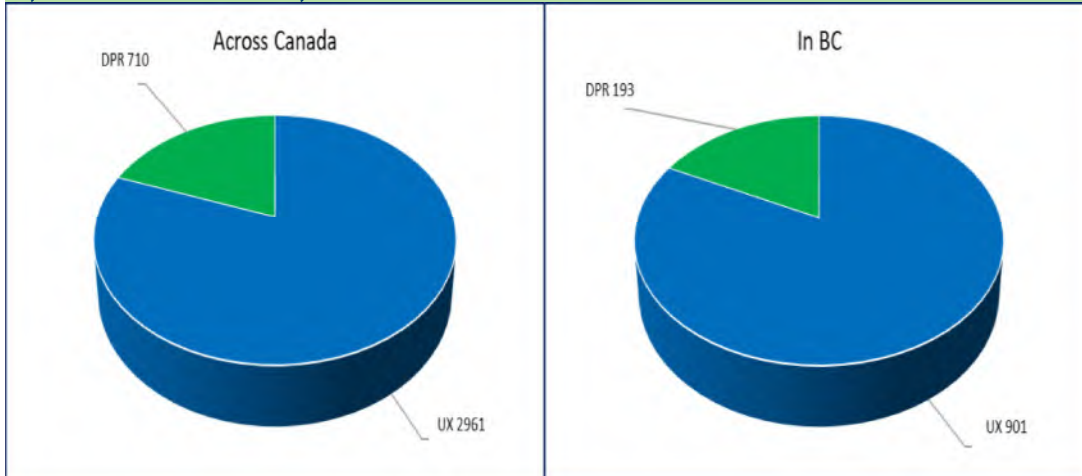
QC has the highest percentage of UAs to Pipeline length, followed by BC

Total Unauthorized Activities in Canada by Province: 3,671 (1999 – April 30, 2023)



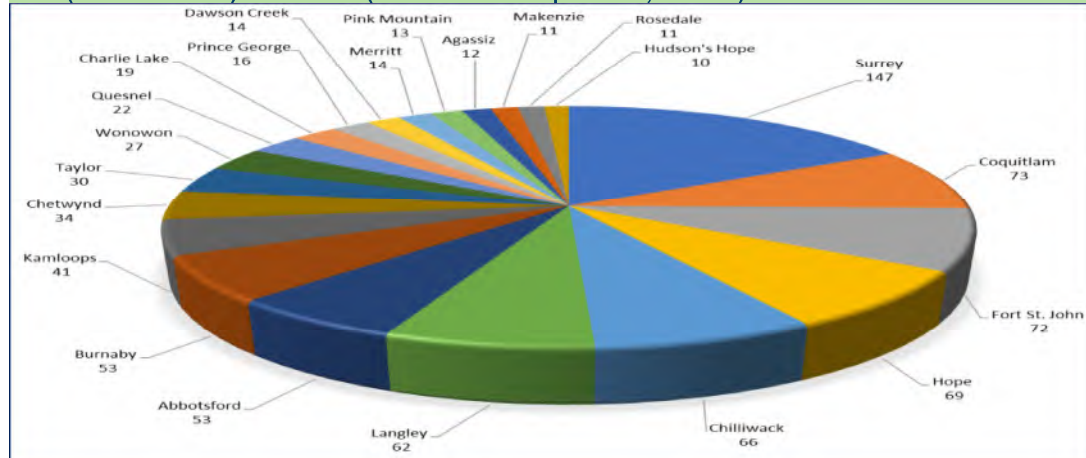
This slide shows relationship btw P/L length & no. of UAs in each province. Top 3 provinces in order: BC, ON, QC. No. of One calls made is low compared to # of UAs in each province. E.g., in BC, out of 1094 UAs, only 8 One Calls were made. While AB has the longest Pipelines, BC has the highest number of UAs with ON & QC not far behind

Total UAs - UX (1999-Nov 2020) & DPR (Nov 2020-April 30, 2023)
3,671 in Canada; 1094 in BC



UX are from 1999 to Nov. 2020. DPRs from Nov. 2020 to April 30, 2023. Added together, over the last 20 yrs, 3671 in Canada & 1094 in BC, which means BC committed almost 30% of all UAs.

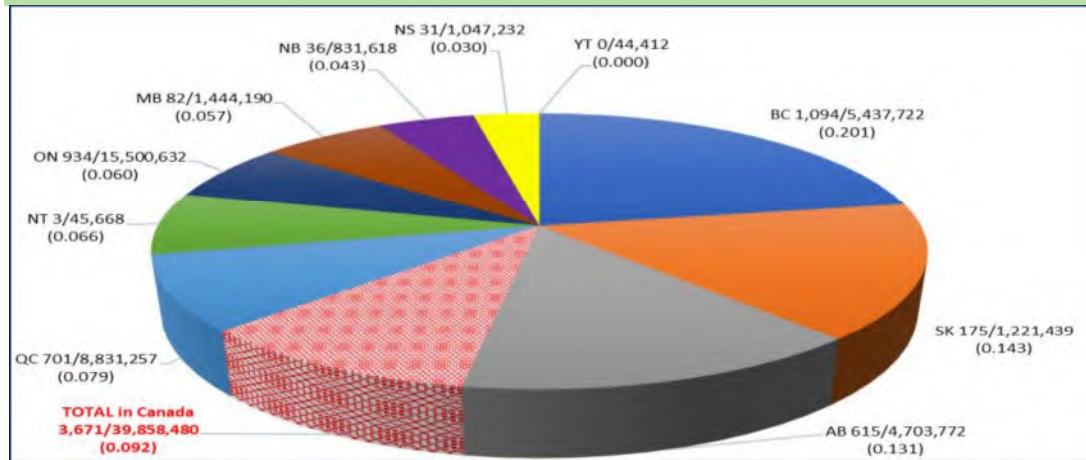
UAs by City in BC – Total 1,094 (Cities with UAs >= 10)
 UX (1999-2020) & DPR (Nov. 2020-April 30, 2023)



In BC, the count of UAs was highest for Surrey at 147 (13.44%), followed by Coquitlam 73 (6.67%), & then Fort St. John 7, Hope, CHWK, Langley, Abbotsford, Burnaby. Cities with less than 10 UAs are not included in this graph.

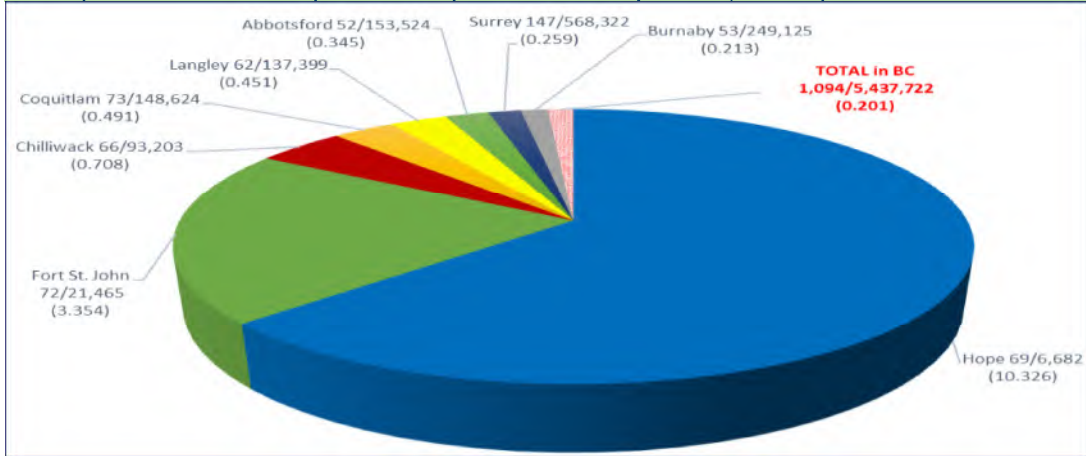
PER CAPITA: # UAs per 1000 people by Province

UAs (UXs 1999-2020) & DPR (Nov. 2020-April 30, 2023)



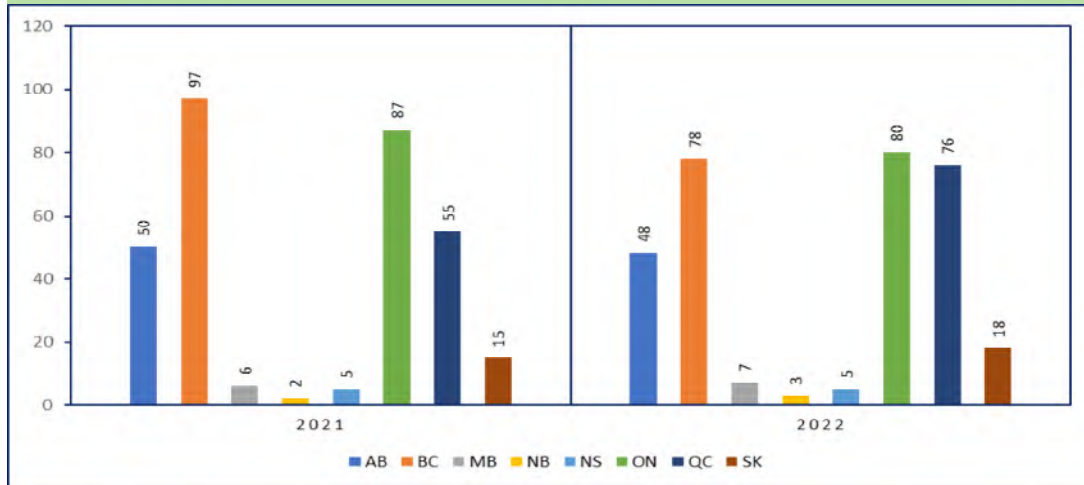
of UAs / (population/1000). BC has the highest UAs per capita (per 1000 people) followed by SK & AB, where 3 of the top provinces have UAs per capita higher than ratio across Canada (0.092)

UAs per 1000 people in BC cities (Top Cities with UAs >= 53)
 UAs (UXs 1999-2020) & DPR (Nov. 2020-April 30, 2023)



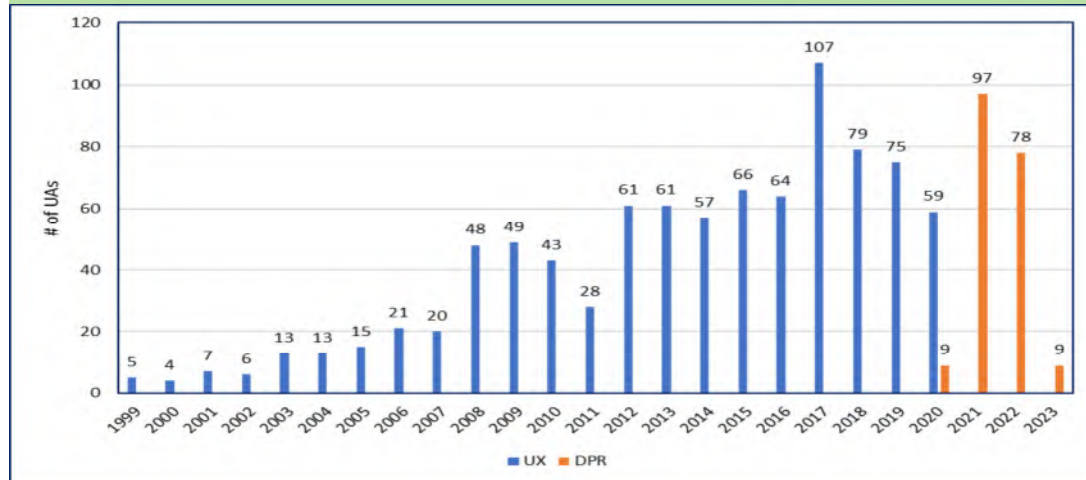
This slide shows the # of UAs / (population/1000) in BC. Hope has the highest UAs per capita (per 1000 people) followed by Fort St. John. All top cities in BC have per capita higher than BC total per capita (0.201)

UAs by Year & Province (DPR prefix - 2021 & 2022)



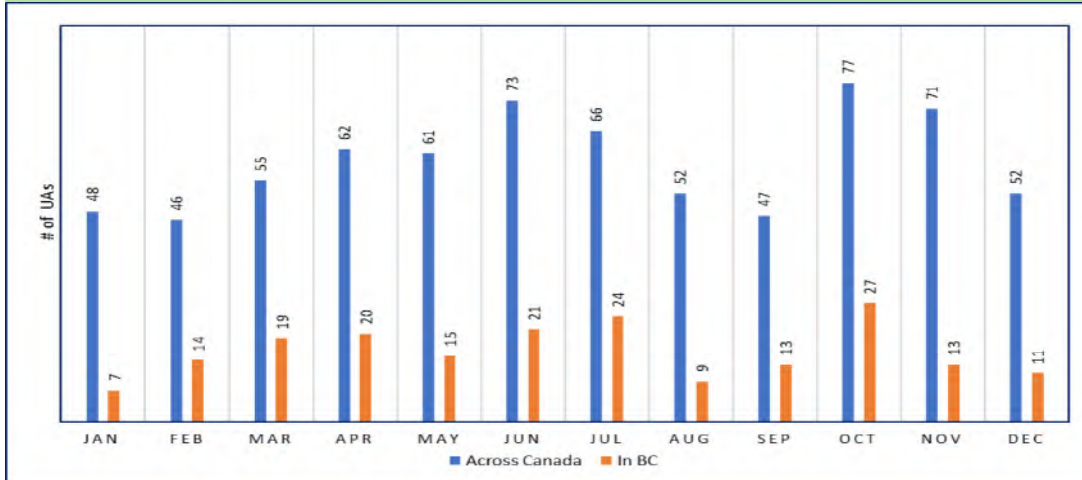
This slide shows the # of UAs by Year & Province. In 2021, BC was the highest followed by ON. In 2020 BC & ON decreased but QC increased by 21 UAs

UAs by Year in BC: Total 1,094
 UX (1999-2020) & DPR (Nov. 2020-April 30, 2023)



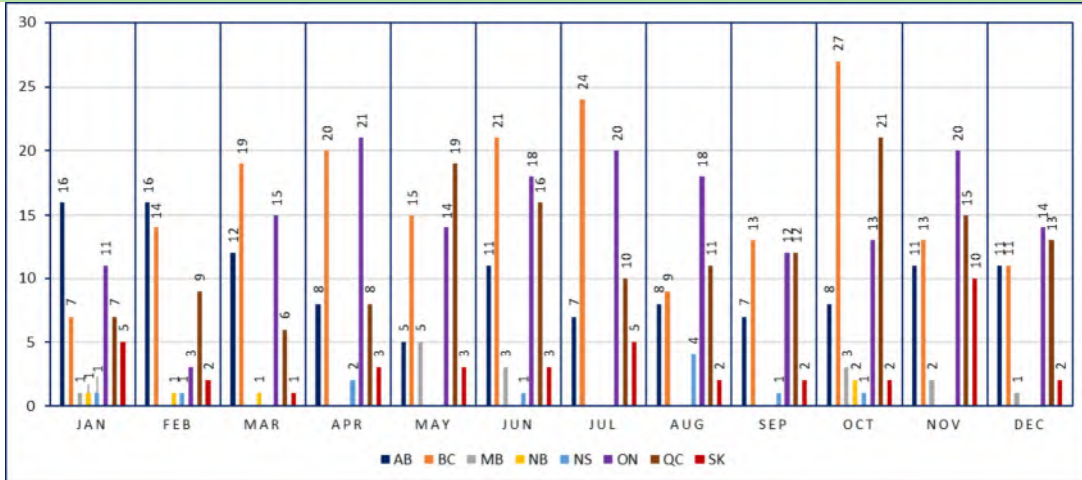
UAs by Year in BC only, from 1999-2023, the highest number of UAs were in **2017** (107), followed by 2021 (97). The years from 2012 to 2020 had relatively same number of UAs (60,s & 70's), then increased again in 2021.

UAs by Month in Canada/BC (Nov. 2020 – April 30, 2023)



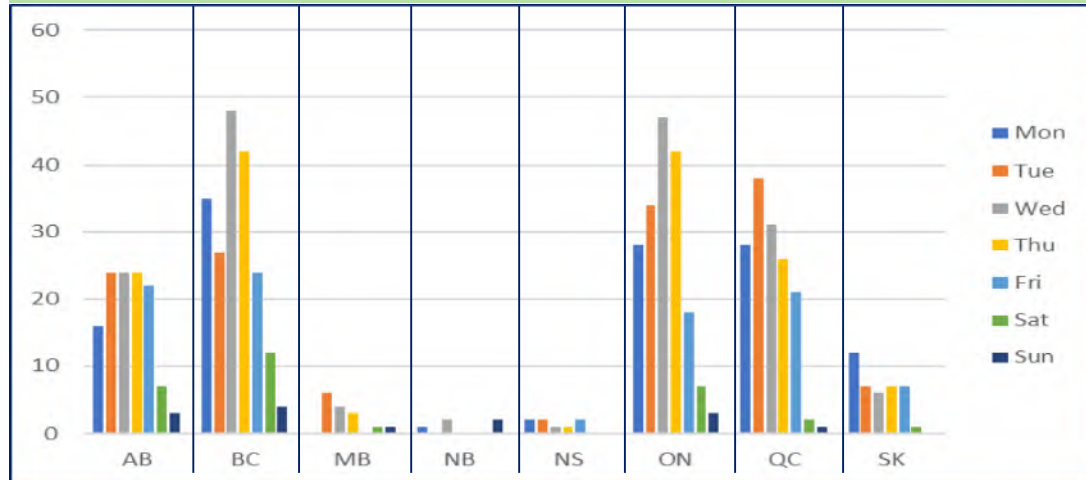
UAs by Month in Canada & BC: From Nov 2020 to Apr 2023, the highest across Canada is **Oct** (with 77), followed by **June** (73) & **Nov** (71). Compared to BC, where the highest was **also Oct.** (with 27) followed by July (24) & Jun (21)

UAs by Month & Province in Canada (Nov. 2020 – April 30, 2023)



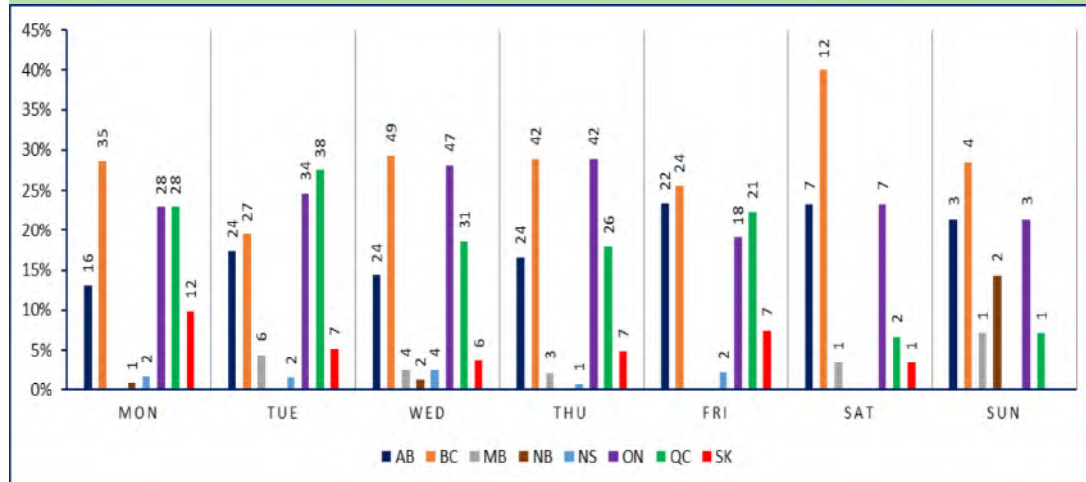
This is a complex slide with a lot of information. This is for the DPR prefix: Nov/20 to Apr/23. Looking @ UAs by Month & Province: the highest # of UAs is BC (highest in Oct., July, Jun, Apr.) Next is ON (highest in Apr, July & Nov). Of note: QC is highest in Oct, May, June & Nov. Interestingly, AB is the highest in Jan, Feb.

UAs by Province & Day of Week (Nov. 2020 – April 30, 2023)



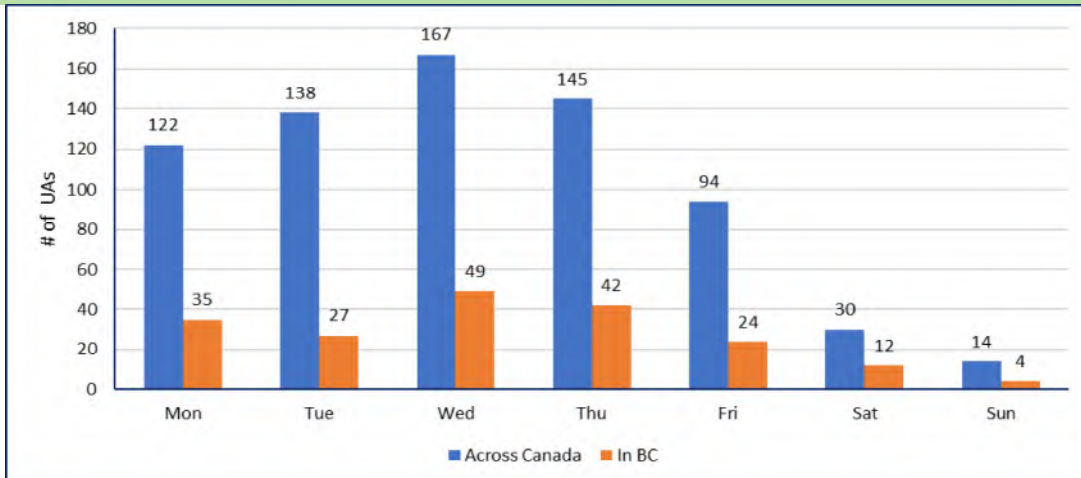
UAS by Province & Day of Week: AB likes T/W/Th/F. BC prefers to commit UAS on Wed & Thurs, followed closely by Mon. MB seems to like T/W/Th. ON prefers to contravene DPRs on Wed & Thurs. followed by Tues. QC has the highest UAS Tue/Wed/Mon. SK prefers Mon. So, the highest is mid-week when UAS are committed.

UAs by Day of Week in Provinces (Nov. 2020 – April 30, 2023)

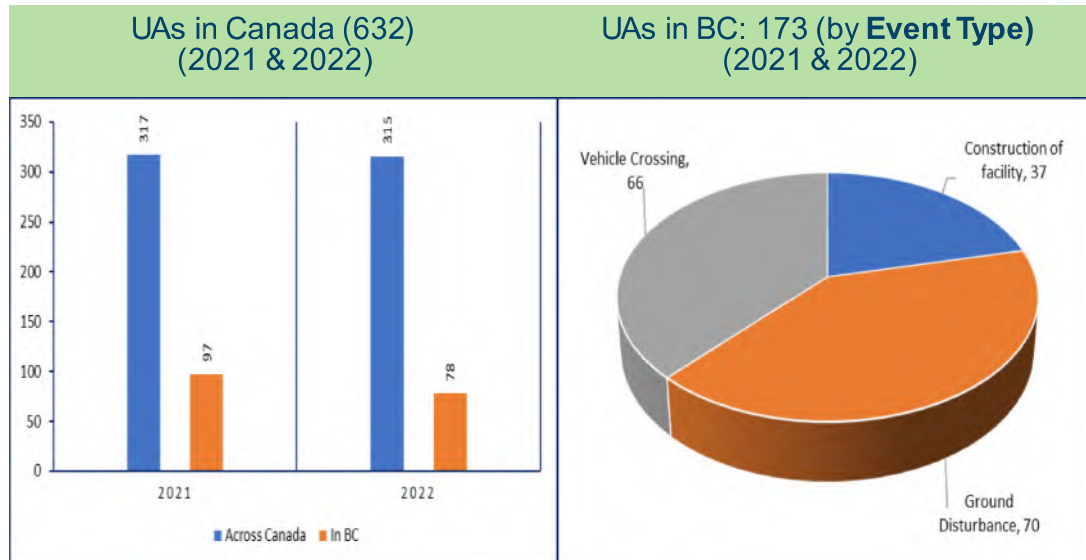


Another way to look at it: these are the percentage of UAs in each prov, compared to total UAs on each day. So, on Mon., BC has highest # compared to UAs in the other provinces. Tue shows QC as highest % compared to other provinces. On Wed & Thur, BC & ON are highest. On Fri, AB, BC, ON & QC are equal. Sat: BC highest. Sun: BC highest.

UAs by Day of Week: Canada & BC (Nov. 2020 – April 30, 2023)

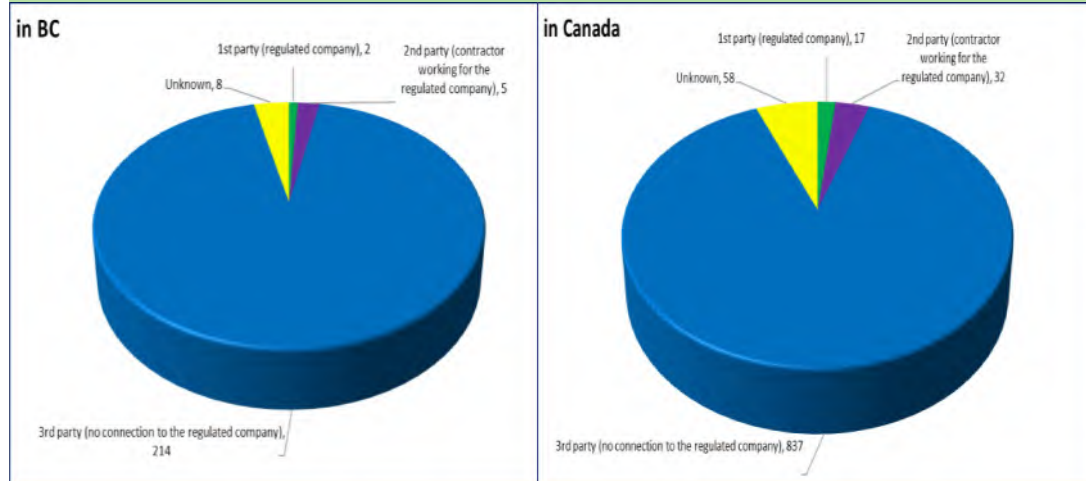


This slide shows UAs by Day of the Week for DPR prefix (Nov/20-Apr/23). (Note: Nos. for Canada include BC) Wednesday is the most popular day for contravening the DPRs is Wed, followed by Thursday and Tuesday. Monday isn't far behind. Weekends are the quietest.



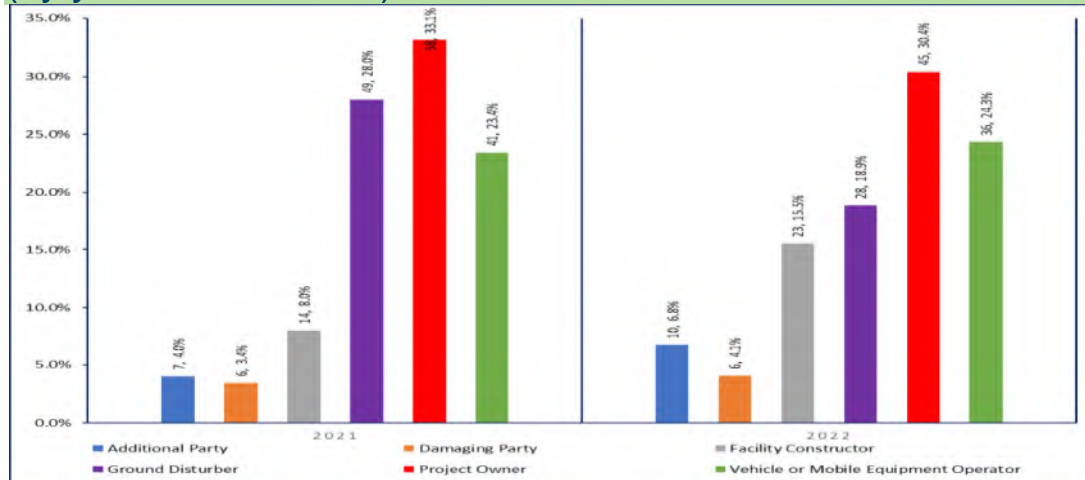
To get Event Types, we could only look at DPR prefix submitted by cos., which are 2021 & 2022. On left are total UAs in Canada for those 2 yrs (632), including BC. BC had 175 DPR UAs. On the right, of those UAs 2021/2022 by Event Type: GD is largest at 70, followed by VC (66) & CoF (only 37). (Nos. don't match left to right, as some UAs have no type (Misreported)).

Parties Involved (Violator/RP) (Nov. 2020 – April 30, 2023)



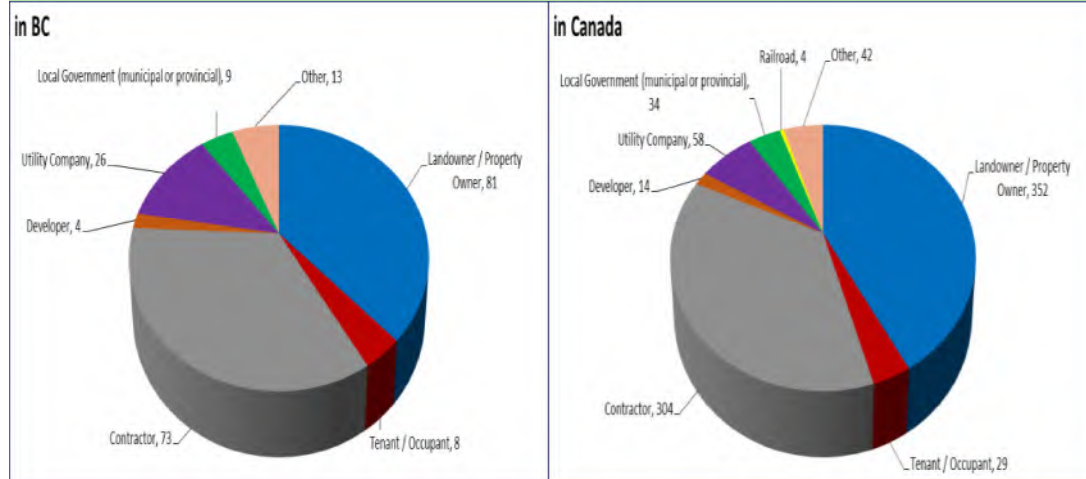
Parties involved (RP): On the right, in Canada, of 915 total in 2 yrs: 1st party (17); 2nd party(32); unknown (58), 3rd party (837). On left, of 229 UAs in BC, 1st party (2), 2nd party (5), unknown (8) & 3rd party (214). There were a lot of Blank Party Involved types not shown in the charts

UAs by Party Involved (Violator) in BC (by year: 2021 / 2022)



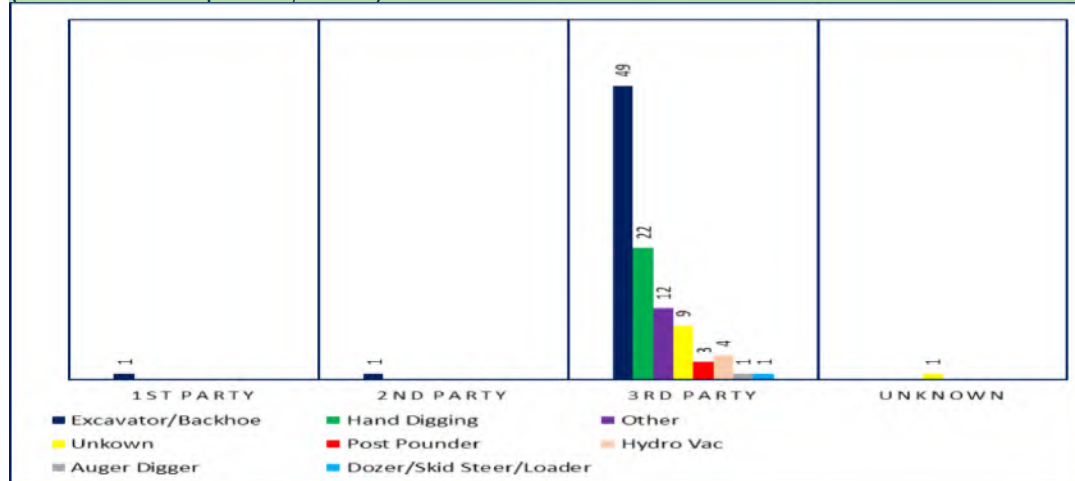
Responsible Party (Violator), BC only: 2021: Project Owner highest (over 58%); Ground Disturber (over 49%), Veh Crosser (over 41%). Compared to 2022: Project Owner (45%); next is Veh Crosser (36%) & Ground Disturber & Facility Constructor(23%). Note: Percentage is # of UAs in each party Involved type to total DPRs in the year

Breakdown of 3rd Party Violator Type (Nov. 2020 – April 30, 2023)



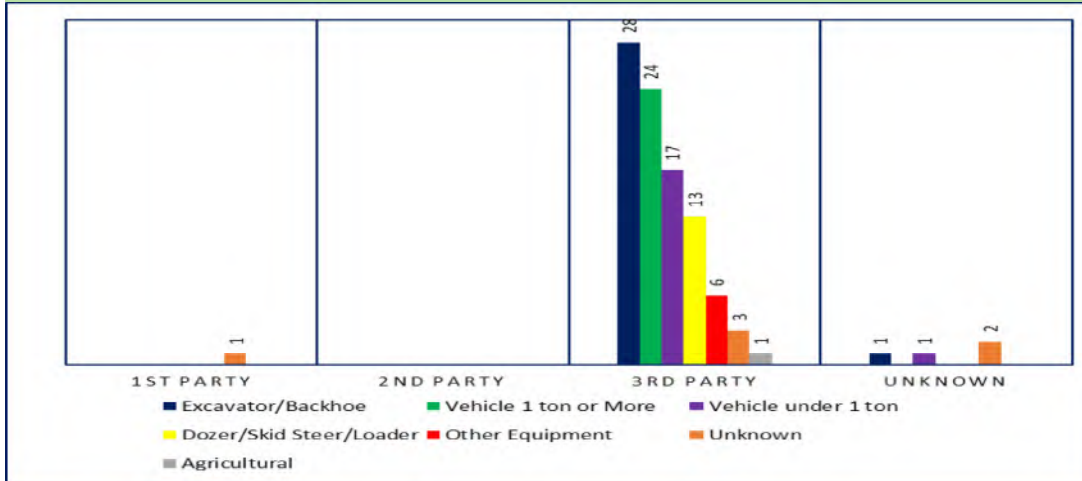
Violator Type: Percentage of 3rd party types is almost the same in BC & Canada. Highest are Landowner/Property Owner. Next are Contractors, followed by Utility Companies.

Ground Disturbance UAs by Violator Type by Equipment Type in BC (Nov. 2020 – April 30, 2023)



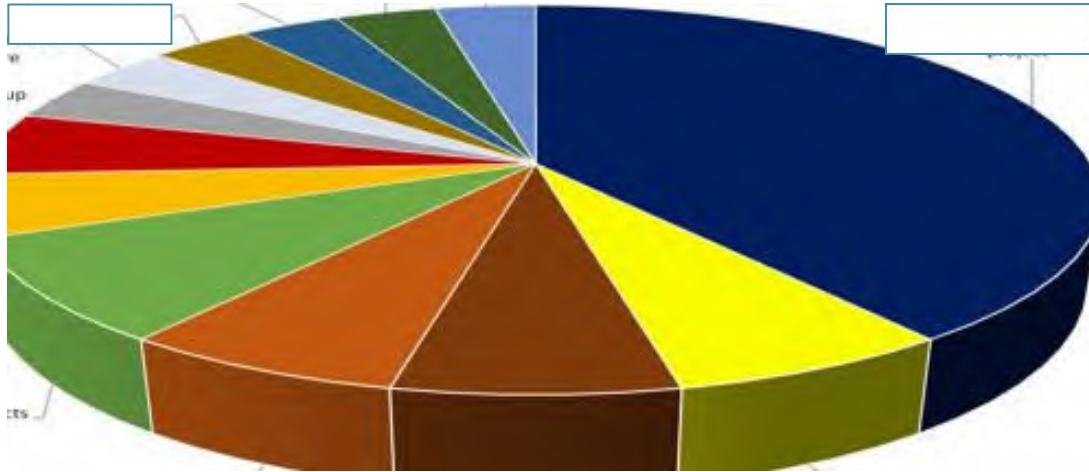
No. of Ground Disturbance UAs by Equipment Type by Party by Ground Disturber in BC: Highest is 3rd Party by Excavator/Backhoe followed by hand digging.

UAs by Violator Type by Vehicle Type in BC UAs (Nov. 2020 – April 30, 2023)



No. of Vehicle Crossing UAs by violator type by vehicle type: highest vehicle crossing in BC is by 3rd party crossing with Excavator/Backhoe Excavator, with Veh 1 ton or more next, followed by veh. <1 ton. When we looked up how many had company written consent for their crossing, only 1 had written consent.

Repeat Violators in BC (Nov. 2020 – April 30, 2023)

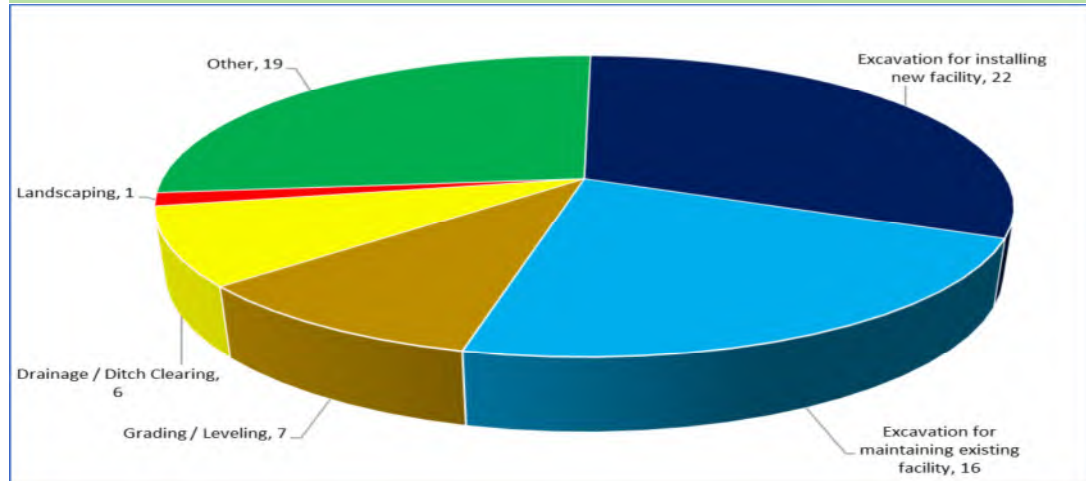


Without TMEP, BC Hydro is first, with BC Wildfire Svcs crossing RoWs in BC, followed by a Recycling Group & MoTi, and then smaller companies.

First 5 largest colours are TMEP-related. Next is Hydro, followed by BC Wildfire Svcs using RoWs in BC, followed by MoTi & then contract/development companies.

Ground Disturbance Types in BC

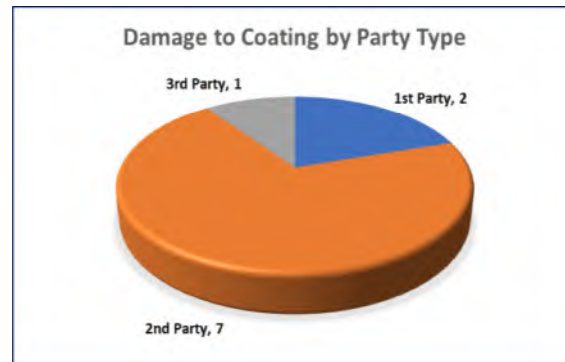
(Nov. 2020 – April 30, 2023)



So, what kind of GD Types in BC did we have the last 2 yrs? Highest was: Excavation for installing new facilities (22), followed by excav. for maintaining existing facilities, followed by ditch clearing. All types of GD includes Fencing, Driveways, land scaping, garage building/fixing, porticos, sonotubes, etc.)

High Risk: Damage to Coating UAs in BC (Nov. 2020-April 30, 2023)

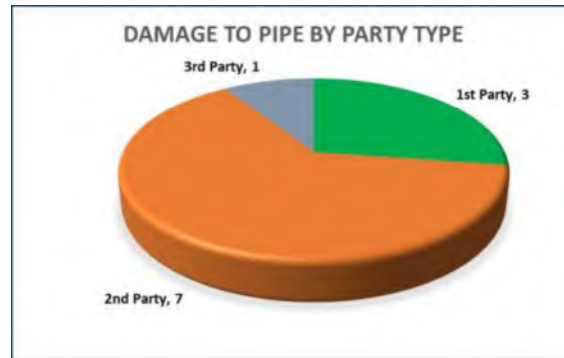
- 1st party (regulated company)
- 2nd party (contractor working for the regulated company)
- 3rd party (no connection to the regulated company)



High Risk Events: Damage to Coating: In total, there are 10 damage to coating UAs, with Second Party being the highest violator.

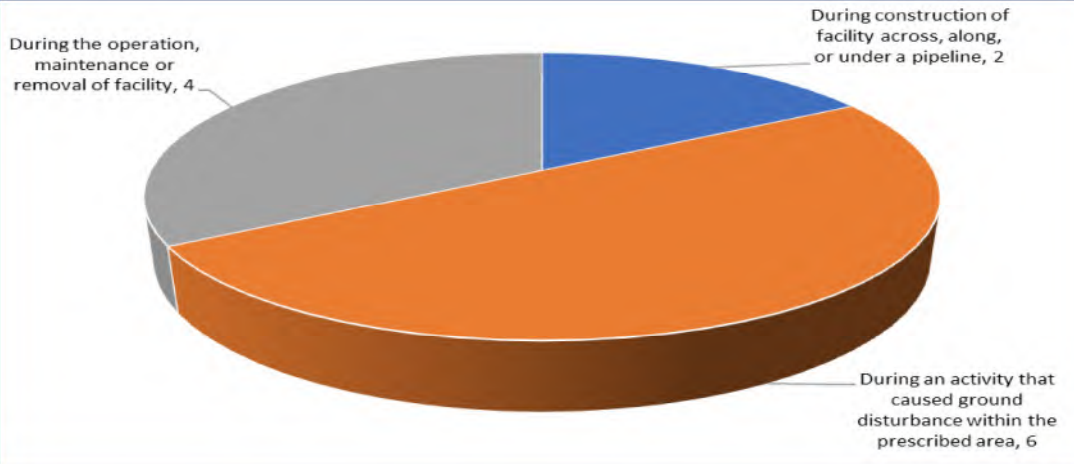
High Risk Activities: Damage to Pipe UAs in BC (Nov. 2020 - April 30, 2023)

- 1st party (regulated company)
- 2nd party (contractor working for the regulated company)
- 3rd party (no connection to the regulated company)



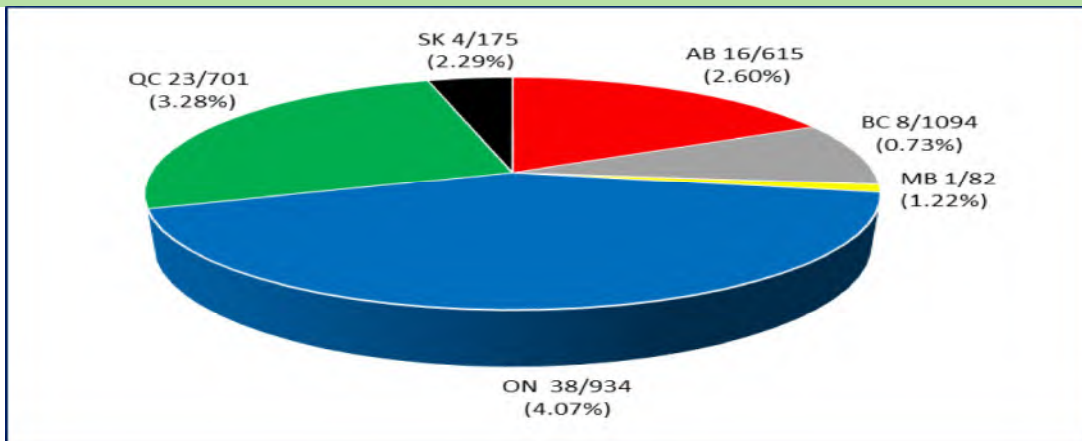
High Risk Events: Damage to Pipe: High Risk Activities in BC: In total, there were 11 damage to pipe UAs from 2021-2022, with highest # incidents by Second Party (7)

Activities occurring during Damage to Pipe in BC (Nov. 2020-April 30, 2023)



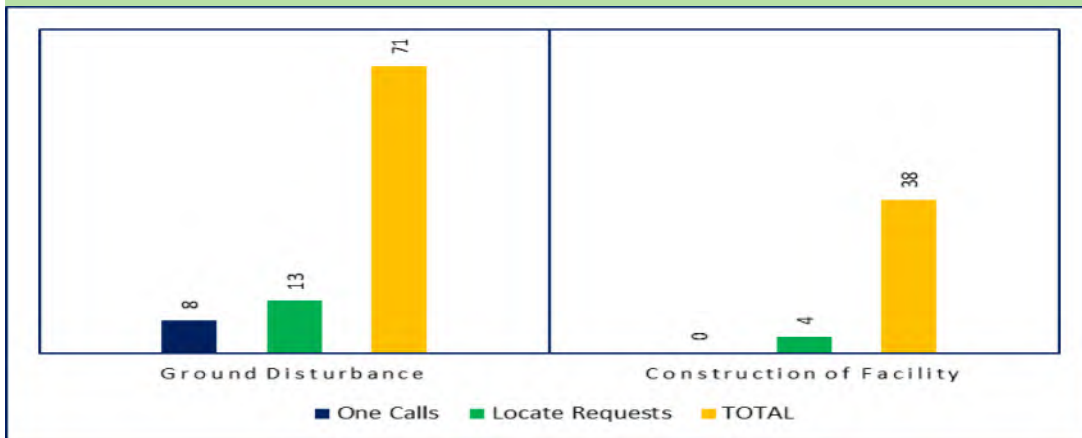
What activities were occurring when the DTP occurred in BC (2 yrs)? Majority were doing GD in Prescribed Area, followed by maintenance or removal of a facility of some type.

Root Causes in Canada: One Calls made by Province: # of one calls made / Total UAs by province (1999 – April 30, 2023)



Possible root causes: Beside each province name, you see One Calls on left / # of UAs on right. Across Canada, MB had least no. of one calls made (1) of 82 UAs. ON had the highest % of One Calls per UA. BC had lowest percentage ratio: 8 One Calls to 1094 UAs. BC (0.73%) of One Calls in ratio to their UAs.

Root Causes in BC: Number of One Calls & Locate Requests (Nov. 2020 - April 30, 2023)



Possible root causes: In BC, of 71 GD UAs, 13 had made a Locate Request & 8 One Call tickets were requested. Of 38 CoF, 4 had made a Locate Request.

Some conclusions:

in BC, most DPR contraventions were

- **Ground Disturbance Activity**
- **By a Third Party who was a Landowner**
- **Equipment: Excavator/Backhoe**
- **On a Wednesday**
- **In October or July**
- **Without a One Call or Locate Request or Written Consent**
- **Highest # of Repeat Violators: by another P/L Co. or their contractors & BC Wildfire Services**

Across Canada

- **Ontario numbers are second to BC (but at least had some One Calls made during those UAs)**
- **Quebec numbers are increasing rapidly**
- **Information captured in UX prefix vastly different to DPR prefix (e.g., UX2018-001; DPR2023-001), making it hard to compare. More complete data in DPR.**
- **If you change any questions or change any details, it changes data results, making it hard to compare**

What patterns did
you notice?

What do you think
you would do in
the future with this
information?

Questions?

