
AOR Webinar April 2023

Agenda

- Why are AOR's important?
- Summary Statement of Conclusions and Recommendations (SSCR)
- Stakeholder Engagement
- Phase I
- Overlapping Sites
- Historical Spills
- Gas Migrations
- Aerial Photos
- Detailed Site Assessment
- UAV (Drone Photos)
- Exemptions
- Contact Us

Introduction

- Why are we doing this Webinar?
 - Learning and growing together
 - Better final product
 - Less review time and more approvals
- Growing pains
- ASCP and ILRP



AOR's and the Why

- Final time eyes will be on a site
- Tell a story from the beginning of the site to the end of the site
- Any holes in that story need to be explained or justified
 - This includes abandonment or Gas Migration issues, borehole repairs after gas migration has been found, etc.

SSCR

- Summary for the AOR application
- Should be detailed enough that the reviewer has no major questions
- You are the experts, we have never been to the sites
- Tell a story for the SIMPLE reviewers
- “The summary must be presented in such a way that readers can rapidly become acquainted with the larger body of material” Alberta Risk Management Plan Guide

Bad SSCR

- Phase I ESA was conducted Feb 4th, 2066. No concerns with the site
- A Detailed Site Assessment was conducted August 4, 2099. The DSA concluded the site was sufficiently reclaimed and passed criteria.
- The landowner was contacted December 16, 2099 and refused to sign the LAF.

Good SSCR 1

- The lease was built in 19XX and operated as a production well until well abandonment in 20XX. No cut and cap report was available for review. Consultant was retained by Licensee to complete the Detailed Site Assessment (DSA) and Acknowledgment of Reclamation (AOR) in 20XX.
- The lease was inspected, and a Phase I completed in 20XX. The well head had been abandoned ahead of the site inspection, and all that remained for infrastructure on the well pad was the power panel pole; the access road remains. It was determined that a Phase II would be required on the site due to a lack of drilling waste disposal information. Documents indicate that drill stem tests were not conducted at the site and there were no historic spills documented at the site. A large amount of kochia and foxtail barley was noted growing on the lease area and surrounding field. After conversations with the landowner, the lease was underwater in past wet years and weed growth was a problem throughout the entirety of the field since. The IRIS database was reviewed in 20XX and found no additional data to add to the Phase I ESA.
- An electromagnetic (EM) 31 survey was completed (attached) ahead of the Phase II investigation that mapped no areas of elevated apparent electrical conductivity.
- A Phase II ESA was completed in the Fall of 20XX. Areas of investigation included: the well centre, the drilling waste disposal area (DWDA), and any other areas with elevated EC or indication of poor growth or subsidence in the soils. Sampling at the well centre found what appeared to be visible hydrocarbons in situ; the soils were analyzed for petroleum hydrocarbon BTEX F1-F4 parameters and were within all applicable criteria and did not require remediation. Any samples throughout the site which exceeded criteria for EC values exhibited sulphate concentrations which were more than one order of magnitude greater than the chloride concentrations, indicating that the site is naturally saline. The boreholes advanced to look for the drilling waste disposal area were not sampled due to the methodology at the time of drilling (supplement attached); the soils were profiled as normal indicating that the soil stratigraphy was considered native and no anomalous soils were encountered. Two of the search boreholes were sent for laboratory analysis and any EC exceedances were a result of natural salinity.

Good SSCR 2

- The lease area and access road were reclaimed in 20XX (report attached). The lease area was stripped back and ripped, before re-contouring the area, and levelling the topsoil back across the lease. The access road was left in place at the request of the landowner, Leeroy Jenkins, for field access. Recontouring was completed on Date. A permanent fence was then installed around the reclaimed area, and due to wet conditions, no finishing work or seeding was completed at this time. Aerial photos of the reclaimed area were collected and are available in the attached report.
- In 20XX, the lease area was inspected in the spring and the reclaimed area was seeded with X lbs of alfalfa and X lbs of cicer milk vetch at the landowners request. The seed was broadcast across the reclaimed area and worked in with a quad and harrows.
- In 20XX, the lease area was inspected by Consultant Company personnel in preparation for a DSA which found that absinthe growth on the lease area was abundant and a DSA was not completed at this time. The absinthe on the lease area was sprayed out with Restore II on Date. Gas Migration testing was completed on date as no report could be found in the file review from the well abandonment; no issues were reported, report attached.
- In Spring 20XX, vegetation monitoring was conducted prior to the completion of the DSA, which found good growth in all areas that had been previously monitored. A passing DSA was completed during the summer of 20XX (report attached); justifications were utilized when considering the soils on site, due to the dry conditions there were restrictions in the subsoil both on and off lease which were comparable; the assessment points were able to be completed to similar depths across the assessment. Upon completion of the passing assessment, the barbed wire fence was removed.
- Mr. Jenkins, the landowner can be reached at (306) 123-4567

Stakeholder Engagement

- One of the most important parts of the whole project
- Contact early and often to keep the LO in the loop and upraised of expected timelines
- Let them know early in the season and near harvest that you are coming to do the DSA so they pay particular attention to the area for potential concerns (can prevent the “I want to see it after one more growing season”)
- Difficult Landowners

Stakeholder Engagement 2

Landowner Leeroy Jenkins called Licensee surface land Date and mentioned that he wasn't happy with the site - it wasn't growing the way it should. Date Consultant contacted landowner and met him at the location. Conversation was as follows:

He proceeded to tell me how the lease wasn't growing very well. I said the growth looked very good and was averaging 120 cm in height. He said that height doesn't mean anything. It is the amount and size of pods on the plant. I said the growth looked comparable to the rest of the field, he didn't want to walk out the lease, he said he could see the lease clearly from the north RM road when he drove by and it looked different. I said that could be because the crop on lease is maturing slightly quicker since there were less flowers on the plants on lease compared to the rest of the field. I persuaded him to walk to well center, which I had previously marked, I think he was surprised as it was difficult to walk through the canola crop due to the density, and could only get there along a sprayer track. I measured the plants on lease at well center, and he said they were not as good, there were only pods on the top foot and half of the plant, and that they were smaller, he picked out some small pods to show me. I said that there would be variability and I picked one very large pod and one small pod from the nearest plant. He said it wasn't as good as off-site, I said let's go check. He did not want to walk through the heavy crop. I proceeded to tell him that rec criteria only required 85% crop height and density compared to the control, which I think this site would meet. He said he wants 100%. Then he proceeded to tell me how, he knows this site was stripped and reclaimed twice. So, there is not enough topsoil since it was lost during reclamation. He did remember praising me for the work myself and my operators did when we reclaimed it. He said we did a good job with what we had. Leeroy was onsite everyday during the rec work, with specific demands, to bring in a trackhoe, to bury all the rocks present in the very rocky field, which he wanted buried at least 2 m down. Significant extra effort was taken to use a bobcat with rock bucket to screen the clay, subsoil and topsoil during rec work to remove rocks and bury deep on lease. We walked back to our vehicles and he picked a pod from the crop along the field edge off lease and showed it to me, I still had the two from well center and we compared them and were similar I had the largest one from well center. He said he wasn't going to sign off because he knows there is a lack of topsoil. I said my assessor would check the depths off and on the lease and that we did not require 100% of control, he did not agree with that and said that missing 15% he wants from Licensee's profit margin as they would agree with only getting 85%. I explained in further detail the rec criteria, and that signing a release for the site was not required, told him about the LAF form. He ended the discussion saying he wasn't happy with last years growth (which was droughty). I contacted the renter and they said that last year the growth was not very good, he did not know how the crop was doing this year. He said he would make note of his yield monitor in the combine when he goes over the lease this year and see how it goes.

Phase I

- Overlapping Sites
- Historical Spills
- Gas Migrations
- Aerial Photos
- Well center sampling. When to complete, when not to.

Overlapping Sites

- AOR'd Sites
 - Already approved through AOR process, do not need to be further investigated
- Exempted Sites
 - Partial Exemption: any overlap the licence is responsible for must be investigated
 - Full Exemption: both/all licences site is responsible for must be investigated (drilling waste, spills, etc.)
- Grandfathered Sites
 - Same as exemptions. Site was zeroed prior to the AOR program and therefore must be investigated to today's standards

Historical Spills

- Historical spills that are associated with well/facility licences must be investigated at the time of AOR of that well/facility licence.
- These investigations should be based on the incident itself.
- If review of the incident contains enough information to show the incident was properly remediated, no further action is required, but should be discussed in the SSCR.
- If there is not enough information, discussion with the landowner and a visual inspection of the incident area during the growing season must be completed. If, upon visual inspection, there is no visual impacts to the area/vegetation growth, no further investigation is required.

Historical Spills 2

- Ensure you check both IRIS and the PNG Digitized Spill Report Directory found here:

<https://www.saskatchewan.ca/business/agriculture-natural-resources-and-industry/oil-and-gas/environmental-protection/incident-management-and-reporting#information-on-incidents-reported-in-saskatchewan>

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Oil and Gas Incident Management and Reporting

Historical Spills 3

5. Information on incidents reported in Saskatchewan

The [PNG Digitized Spill Report Directory](#) provides historical incident documents up to November 4, 2015.

For incidents that occurred since November 4, 2015, see [The Saskatchewan Upstream Oil and Gas IRIS Incident Report](#). If further information is required on a specific incident, contact the ER Service Desk at 1-855-219-9373 or ER.Servicedesk@gov.sk.ca. Please note overlaps occurs between the PNG Digitized Spill Report Directory and the Saskatchewan Upstream Oil and Gas IRIS Incident Report for incidents reported in the time period from 1985 to November 4, 2015.

IRIS users with the appropriate security permissions from their Business Associate's IRIS Security Administrator can also access their company's incident reports in the system, as well as those incidents reported by other industry members.

Gas Migrations

- Gas Migration requirements have changed fairly recently
- ER is trying to work with Industry where GM's were completed in frozen conditions
- Kindersley – Anything prior to May 2019 is acceptable for gas migrations completed in frozen conditions, but anything after needs a new gas migration test completed outside of frozen conditions
- Lloydminster – Anything prior to 2020 is acceptable for gas migrations completed in frozen conditions, but anything from 2020 onward needs a new gas migration test completed outside of frozen conditions
- Swift Current – Previously required anything prior to 2018/2019 is acceptable for gas migrations completed in frozen conditions, but anything after needs a new gas migration test completed outside of frozen conditions.
- Estevan – requires gas migrations completed outside of frozen conditions period, as the old guideline required it and it is the industry standard (even though it did not state that in PNG026)
- Field Offices approve these so if they are outside the norm, include that approval

Aerial Photos

- Aerial photos of the site should always be included in PHI
- One or more Pre-disturbance
- One photo every 3 years of activity
- One or more Post-disturbance
- Where these are not available, the missing photos should be explained (Not on ISC, etc.)
- Explain what is seen in detail

Well Center Sampling

- Site by site dependent
- Realistically should be completed on all producers as it is an APEC, however we understand that this isn't necessarily feasible.
- As such, detailed, science/weight-based evidence should be used in your justification when it is not completed.
- Each consultant will have a “minimum production threshold” where a PHII is required, but we understand that is based on experience and closely kept by each company.

Detailed Site Assessment

- Used to show comparability of site to surrounding area
- More is better than less
- “Pictures are worth 1000 words”
- Soil profile photos are required
- Well Center photos
- Photos from lease edge
- Assessment depths should always be to 50, unless natural barriers exist
- Meet landowner onsite if cool, can show you any issues/concerns

Lease Boundaries

Legend



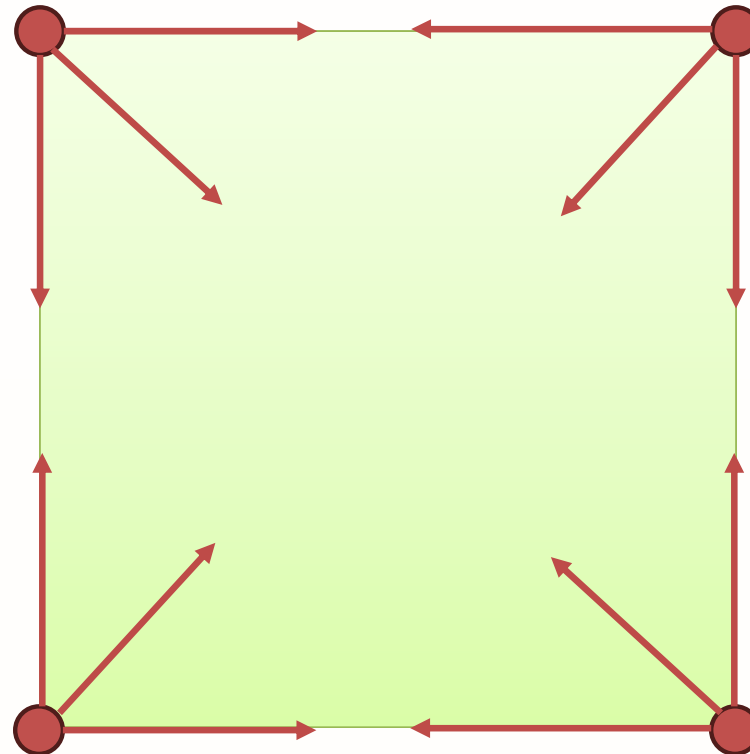
-Lease



-Photo Location



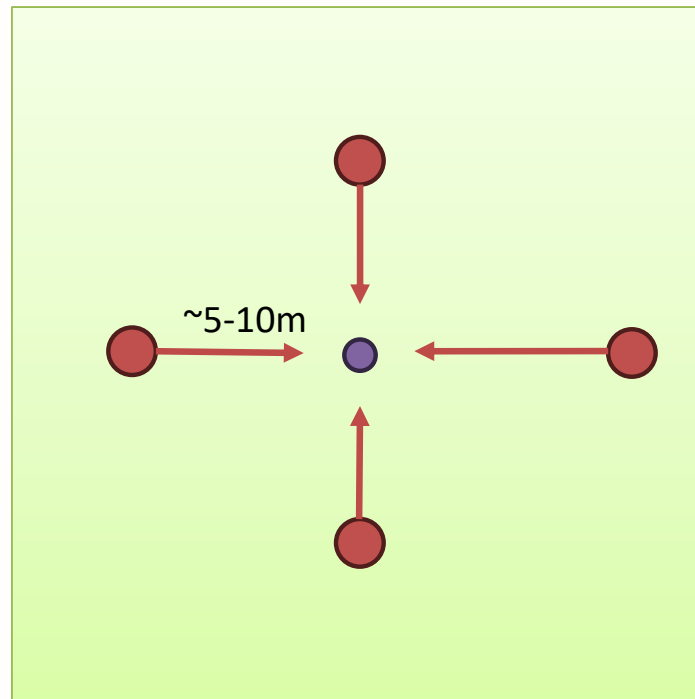
-Photo Direction



Well Center

Legend

-  -Lease
-  -Photo Location
-  -Photo Direction
-  -Well Center



Justification Photos/Chicken Pox???

Legend



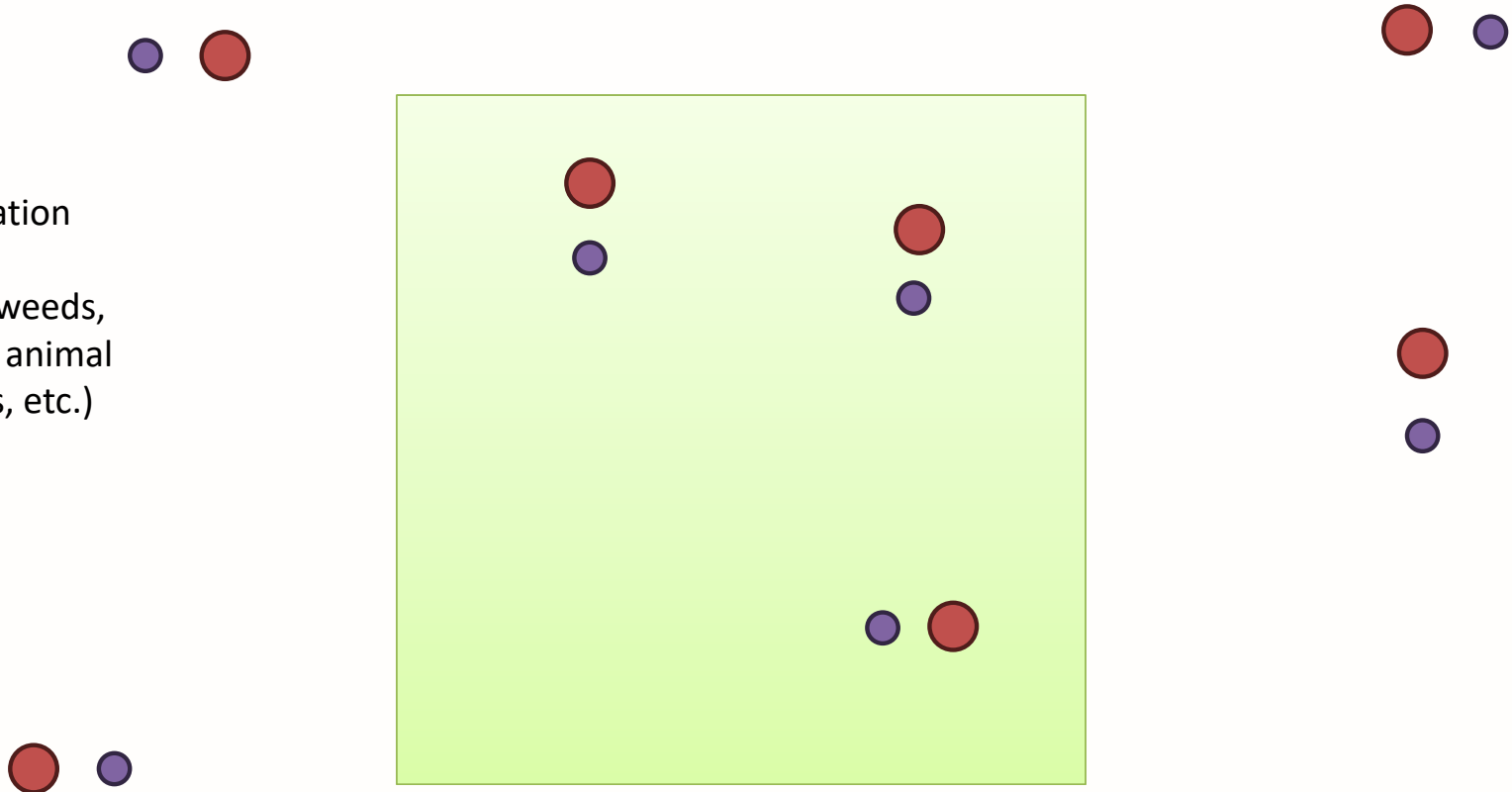
-Lease



-Photo Location



-Anomaly (weeds,
bare areas, animal
infestations, etc.)



UAV Photos

- Not required, HOWEVER
- Really help show comparability of site vs surrounding area
- Easily shows weeds on and off site
- Gives a clear view of any issues on or off site when using justifications



Exemptions

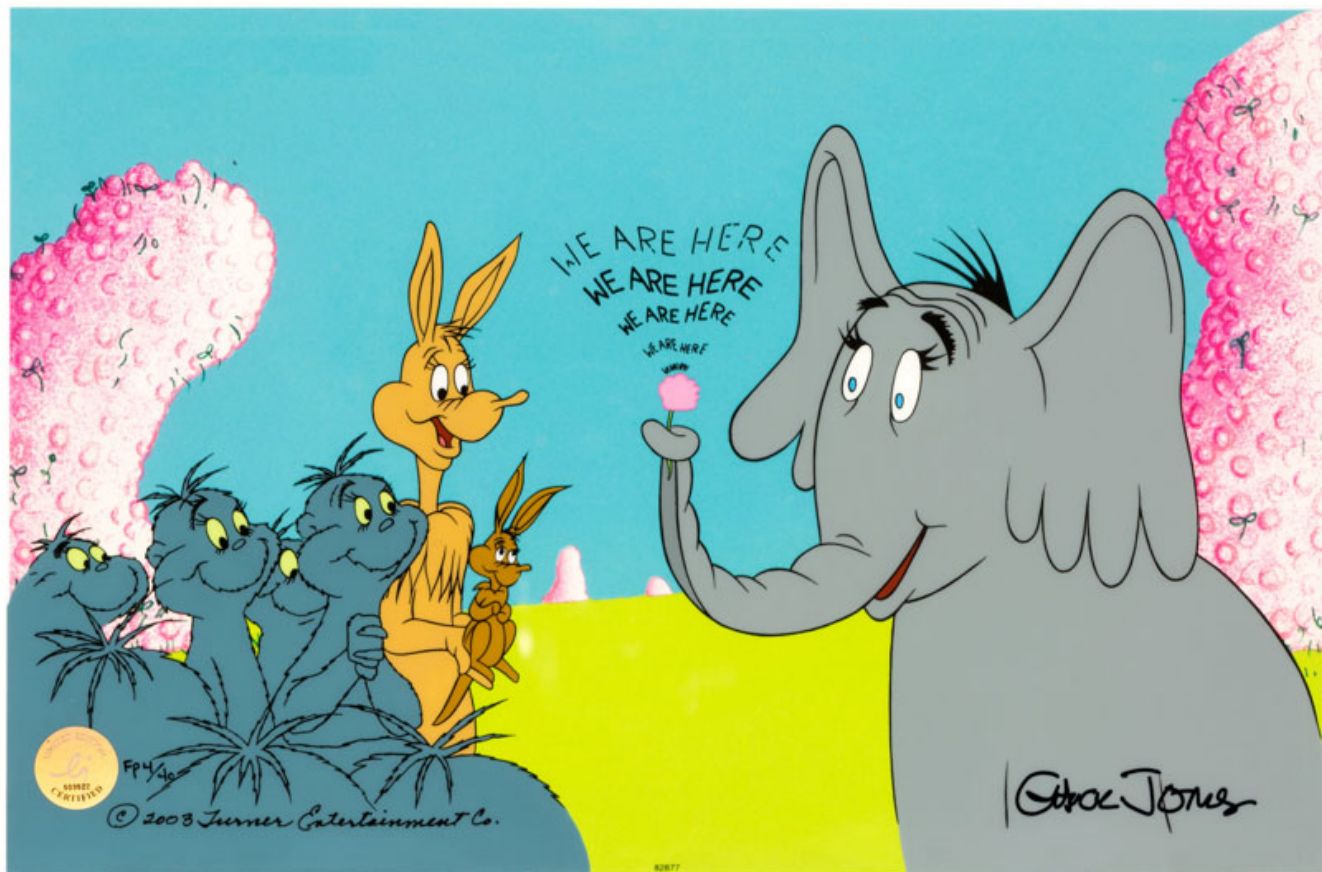
- All Overlapped Area must be highlighted green in all surveys. Yellow and Blue are only used for Non-overlapped Areas
- The “Size of Licence Area” equation must be equal on either side of the equation, and all locations that have no value should have a zero

Size of licence area (ha): Lease: 0.504 + Access: 0.000 = Exempt (overlap): 0.504 + Non Exempt (remaining): _____

- Label your surveys with well/facility licence and arrows. For facilities, arrow points to edge of lease, for wells, arrow points to the well bore

Contact Us

- If you have concerns about a site, call us and we can work with you!
- We would rather take the time at the start of a project as opposed to rejecting them



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Questions?

