
APPENDIX A

Appendix A. Summary of Case Studies Received from Industry

Case Study No.	Site Type	Region	Site Access	Construction Date	Abandonment Date	Reclamation Date	Detailed Site Inspection (DSA) Completion Date	Site Summary and Reclamation Deficiencies	Variance Request and or Reclamation Certificated Application Submitted to AER?	Reason for Exclusion from Case Studies
1 (A)	Wellsite	Wabasca	Heli or Argo only	Between 04/30/1994 and 06/01/2007	01/25/2017	After 06/01/2007	08/11/2019	Subsided areas with ponding and low desirable herbaceous species cover	No	N/A - included in case studies
2 (B)	Wellsite and access road	Cold Lake	Road access	Before 04/30/1994 (02/26/1991)	03/03/2014	After 06/01/2007	09/21/2016	Subsided area, low desirable herbaceous species cover and noxious weeds	Yes, Reclamation Certified	N/A - included in case studies
3 (C)	Wellsite	Cold Lake	Road access	After 06/01/2007 (12/18/2008)	01/02/2009	After 06/01/2007	Completed in 2012 but conditions have changed	Soil not replaced on portion of the site and noxious weeds	No	N/A - included in case studies
4 (D)	Wellsite	Edson	Heli or Argo only	Between 04/30/1994 and 06/01/2007 (02/02/2006)	01/14/2008	After 06/01/2007	06/15/2018	Soil not replaced and soil stockpiles left in place	Yes, Reclamation Certified	N/A - included in case studies
5 (E)	Wellsite and access road	Wabasca	> 1 km from high grade road	Between 04/30/1994 and 06/01/2007 (01/26/1995)	02/04/2015	After 06/01/2007	09/27/2017	Soil not replaced and soil stockpiles left in place, coarse woody debris pile and problematic species (noxious weeds and problem introduced weeds)	No	N/A - included in case studies
6	Wellsite	Chinchaga	-	-	-	Not reclaimed	-	Cut and fill construction; no obvious topsoil salvage; adequate natural recovery of vegetation	-	Too far away for potential field tour
7	Wellsite	Chinchaga	-	-	-	Not reclaimed	-	Topsoil not replaced (stockpiles left in place); possible contour issues; excellent naturally recovery of deciduous trees and shrubs	-	Too far away for potential field tour
8	Wellsite	Wandering River	-	-	-	-	No	Topsoil piles left in place and overgrown with trees; low topsoil depths on-site; noxious weeds that have been controlled several times; very well vegetated	-	Limited background information
9	Wellsite	Wandering River	-	-	-	-	-	Slightly padded; low topsoil depths on-site	-	Padded sites were outside the scope of Stage 2A
10	Wellsite	Calling Lake	-	-	-	-	-	Padded; low topsoil depths on-site, more than 20 years of tree regrowth on most of the site	-	Padded sites were outside the scope of Stage 2A

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11	Wellsite	Calling Lake	-	-	-	-	-	Slightly padded, low topsoil depths on-site; very well vegetated with herbaceous cover	-	Padded sites were outside the scope of Stage 2A
12	Wellsite, remote sump and borrow pit	NW of Peace River	-	-	-	-	Completed but date not known	Lack of topsoil and historical weeds. Generally well vegetated except some portions of the site do not pass the woody stem critieria	Variance request submitted, but denied by AER due to assessment points that do not meet the woody stem criteria	More difficult to justify due to failing vegetation parameters
13	OSE wellsite	Cold Lake	Adjacent to road	-	-	-	Completed but date not known	Third party weeds (long term weed control with fluctuating weed numbers); the presence of weeds have not inhibited the regeneration of desirable vegetation.	Plan to submit to AER in 2022 with the rest of the OSE program	Third party weeds could be a complicated justification
14	OSE wellsite	Cold Lake	Adjacent to road	-	-	-	2019	The wellsite and access road are located within an active grazing lease. Cattle activity on-site are impeding woody species establishment, limiting the species composition, and introducing noxious weeds (Canada thistle) and agronomic grasses (tufted hair grass).	Plan to submit to AER in 2020 with the rest of the OSE program	Grazing sites were not a focus of the project
15	Wellsite	Cold Lake	-	-	-	-	-	Stockpile, lack of topsoil, subsidence (testpits), vegetation fail and noxious weeds	-	More difficult to justify due to failing vegetation parameters
16	Wellsite	Cold Lake	-	-	-	-	-	Infrastructure (Cathodic Protection System), vegetation fail and noxious weeds.	-	Infrastructure present is an obvious fail. More difficult to justify due to failing vegetation parameters
17	Wellsite	Fox Creek/Hinton	Accessible by road, but long drive	-	-	-	No DSA completed	Cut and fill. Good vegetation establishment on-site with the exception of the tear drop and crown of the access road.	Submitted request for approval of minimum reclamation plan to only work on the teardrop and crown of access road to AER. Request was denied.	Uncertainty in the process for pre-approval of minimum reclamation plans (i.e. pre-approval before the reclamation plan has been carried out)
18	Wellsite	Fox Creek	> 1 km from high grade road	-	-	-	No DSA completed	Cut and fill. Very good vegetation establishment with the exception of the teardrop area.	Submitted request for approval of minimum reclamation plan to only work on the teardrop to AER. Request was denied.	Uncertainty in the process for pre-approval of minimum reclamation plans (i.e. pre-approval before the reclamation plan has been carried out)

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19	Wellsite	Whitecourt	Easily accessible by road	-	-	-	Completed but date not known	Subsoil texture and weeds.	Yes, Reclamation Certified (2020)	Subsoil texture was not specifically addressed in the Guide
20	Wellsite	Edson	Easily accessible by road	-	-	Not reclaimed	No DSA completed	Lack of topsoil. Dense vegetation establishment on-site (including >4 m aspen and poplars) with the exception of the teardrop area.	Submitted request for pre-approval of minimum reclamation plan to only work on the teardrop and crown of access road to AER, and for a vegetation override for the remainder of the site. Request was approved and reclamation plan was executed.	Uncertainty in the process for pre-approval of minimum reclamation plans (i.e. pre-approval before the reclamation plan has been carried out)
21	Wellsite	Akuini	Road access	-	-	Not reclaimed	No DSA completed	Cut and fill (2 to 3 m high)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
22	Wellsite	Akuini	Road access	-	-	Not reclaimed	No DSA completed	Cut and fill; topsoil and subsoil piles on left in place; uneven contour within on lease remote sump (not holding water); noxious weeds (Canada thistle, scentless chamomile and tansy; sprayed in 2009, 2013 and 2015)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
23	Gravel Pit	Brintnell	Road access	-	-	Not reclaimed	No DSA completed	Topsoil not replaced (topsoil stockpile left in place); wood pile left in place; third party use of site for camping/ target practice (debris and garbage left requiring removal). Access road not recontoured and topsoil not replaced	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
24	Wellsite	Brintnell	Road access	-	-	Not reclaimed	No DSA completed	Access road not recontoured	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
25	Wellsite	Brintnell	Road access	-	-	Not reclaimed	No DSA completed	Access road not recontoured; dense agronomic species on-site	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
26	Remote sump	Brintnell	Road access	-	-	Not reclaimed	No DSA completed	Topsoil stockpiles left in place; northwest corner under water; noxious weeds (Canada thistle and scentless chamomile and tansy)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)

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27	Wellsite	Brintnell	Road access	-	-	Not reclaimed	No DSA completed	Subsided area	-	Did not have enough information to assess eligibility for a variance (especially vegetation information)
28	Gravel pit	Brintnell	Road access	-	-	September 2019	No DSA completed	Noxious weeds (sow-thistle and scentless chamomile; sprayed in 2017)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
29	Wellsite	Brintnell	Road access	-	-	2014	-	Lack of topsoil; noxious weeds (scentless chamomile, Canada thistle and sow-thistle; sprayed in 2018 and 2019)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
30	Remote sump	Godin	Road access	-	-	-	-	Lack of topsoil; noxious weeds (scentless chamomile, Canada thistle and sow-thistle; sprayed in 2018 and 2019)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
31	Wellsite	Marten Hills	Road access	-	-	-	-	No information	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
32	Wellsite	Marten Hills	Road access	-	-	2015	-	Lack of topsoil; noxious weeds (Canada thistle present; sprayed in 2019)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
33	Remote sump	Marten Hills	Road access (close to HWY 754)	-	-	2015	-	Limited/admixed topsoil; noxious weeds (Canada thistle and tansy; sprayed in 2019)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
34	Wellsite	Mitsue	Road access	-	-	Not reclaimed	No DSA completed	Contour issues on wellsite and access road; culverts left in place; noxious weeds (Canada thistle; sprayed in 2015)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
35	Remote sump	Mitsue	Road access	-	-	-	DSA planned in 2020	Noxious weeds (Canada thistle; sprayed in 2019)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)

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36	Well	Mitsue	Road access	-	-	2019	-	Lack of topsoil; heavy infestation of noxious weeds (sow-thistle).	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
37	Wellsite	Mitsue	Road access	-	-	-	-	Possible excess thick slash; noxious weeds (Canada thistle and scentless chamomile)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
38	Wellsite	Mitsue	Road access	-	-	-	-	Possible compaction; noxious weeds (Canada thistle and scentless chamomile)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
39	Wellsite	Mitsue	Road access	-	-	2019	-	Admixed topsoil; noxious weeds (Canada thistle; last sprayed in 2015).	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
40	Gravel Pit	Mitsue	Road access	-	-	2015	-	Lack of topsoil; noxious weeds (sow-thistle, Canada thistle and scentless chamomile; sprayed in 2015, 2017, 2018, 2019).	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
41	Wellsite	Mitsue	Road access	-	-	2019	-	Possible hill cut; noxious weeds (scentless chamomile and Canada thistle)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
42	Wellsite	Mitsue	Road access	-	-	2019	-	Admixed soils; excess woody debris	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
43	Remote sump	Mitsue	Road access	-	-	2019	-	Admixed topsoil; noxious weeds (Canada thistle and sow-thistle)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
44	Wellsite	Narrows Creek	Road access	-	-	2015	DSA not completed	Admixed topsoil; noxious weeds (Canada thistle, sow-thistle and scentless chamomile; sprayed 2016, 2018 and 2019); agronomic species	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)

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45	Built not drilled wellsite and adjacent borrow pit	Nipisi	Road access	-	-	December 2013	DSA not completed	Subsided area; NW corner very wet; noxious weeds (scentless chamomile and Canada thistle; sprayed in 2009, 2010, 2013, 2015, 2016, 2019, 2018 and 2019; numbers have decreased over time)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
46	Wellsite	Nipisi	Road access	-	-	Not reclaimed	DSA not completed	Subsided area; cut and fill; noxious weeds (Canada thistle and sow-thistle; sprayed in 2013 and 2014)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
47	Wellsite	Nipisi	Road access	-	-	Not reclaimed	DSA not completed	Cut and fill along access road; noxious weeds (Canada thistle and sow-thistle; sprayed 2013 and 2014)	-	Did not have enough information to assess eligibility for a variance (e.g., vegetation information)
48	Wellsite	Nipisi	Road access	-	-	-	-	Padded wellsite (50 cm depth); very over grown location. Moderate infestation of noxious weeds (sow-thistle and Canada thistle; sprayed 2009, 2010, 2013, 2015, 2016 and 2019)	-	Padded sites were outside the scope of Stage 2A

"-" = information not available