

Integrated Pest Management Plan



Cook Inlet Natural Gas Storage LLC

IPM Plan Effective Dates	July 2016 thru September 2019
Management Area	<p>Name: Cook Inlet Natural Gas Storage Alaska (CINGSA) Well Pad</p> <p>Location: 1430 Bridge Access Road, Kenai, AK Tract F-1, Alaska State Land Survey No. 2012-04, 9.913 acres Plat No. 2014-20, Records of the Kenai Recording District, Third Judicial District State of Alaska</p> <p>State of Alaska, Department of Natural Resources Lease Agreement No. ADL230925.</p>
General Site Description	<p>CINGSA is leasing a 6.913-acre property from the State of Alaska at the above-described location. Approx. 5.1 acres were developed and now support natural gas injection/withdrawal wells, gathering and flow pipe lines, a motor control and telemetry building, a water well building, a concrete containment area with storage tanks for produced water and for glycol, compressed air storage tanks, a separation vessel, and other ancillary features.</p> <p>The facility is operated remotely from the nearby compressor station at 1377 Beaver Loop Road, but is regularly visited for a variety of operational tasks including data collection and equipment maintenance.</p> <p>Within the fenced area (approx. 4.2 acres). Most of the ground surface is compacted gravel (approx. 3.6). Asphalt paving extends from the gate to the south and east sides of the motor control and telemetry building are paved. Along with other structures, hard surfaces occupy approx. 0.2 acre.</p> <p>The southern 80 feet of the fenced area is a vegetated buffer, which was seeded with norcoast bearing hairgrass, arctared fescue, and annual rye grass. Within the fenced area it occupies approx. 0.4 acre.</p> <p>These areas are shown on the attached figure.</p>
Land Uses	<p>The land use is industrial but the northwest corner of the lease area, outside the fence, was set aside as a bald eagle nest protection buffer zone. The CINGSA well pad site is immediately adjacent to the west side of the 200-foot right-of-way of Bridge Access Road.</p>

Person in Charge	<p>Lead Applicator: Rick Brenegan, Lead Gas Storage Plant Operator 907-714-7578 / rick.brenegan@enstarnaturalgas.com</p> <p>Matt Federle, Gas Storage Plant Manager 907-714-7581 / matthew.federle@enstarnaturalgas.com</p> <p>Robin Leighty, Right-of-Way and Permitting Agent 907-334-7953 / robin.leighty@enstarnaturalgas.com</p>
Certified Applicator and Certification Number	Rick Brenegan 10060-1906-9

1. Action Thresholds

Single Category: Vegetation

The level at which the pest becomes a problem which requires control measures to be taken

Due to fire hazard, there must be zero tolerance for vegetation and other combustibles near the wells, and under and around the natural gas lines and ancillary features. Grass and Woody vegetation should be eradicated.

Vegetation around buildings should be eradicated to prevent damage and eliminate the risk of fire.

Within the vegetated buffer along the south edge of the fenced area, any number of individual plants of those species identified in 11 AAC 34.020 (Prohibited and Restricted Noxious Weeds) is considered a problem warranting the application of control measures.

2. Monitor and Identify Pests

Frequency of inspections of management area for the presence of pests

Every two weeks during growing season by the certified applicator; monthly during growing season by permitting staff.

Locations to be inspected

Inside fenced area on leased property

Methods for identifying and quantifying the presence of pests

The presence of undesirable vegetation will be determined by routine visual survey. Visual inspections will look for vegetation growing around the injection/withdrawal wells, under and around piping, around structures, and under or around all other ancillary features on the site.

How pest species will be identified

Vegetation will be identified by the lead applicator and, where necessary, by permitting and right-of-way staff at ENSTAR Natural Gas Company. Most of the plant species growing on the developed portion of the well pad have been identified. The references listed at the end of this plan will assist with verification and, where necessary, identification of additional plants found.

Record keeping procedures

Information from inspection, of control measures applied, and from subsequent re-inspections will be recorded for reference and to help guide future control decisions. These and other pest management records will be maintained at the CINGSA office located at 1377 Beaver Loop Road, and will be retained for a minimum two years of the date of application.

Inspection record will include the date, location, and remarks concerning undesirable plants, their location, and their general abundance (approx. number or area).

For each control applied, recordkeeping will be in accordance with the requirements of 18 AAC 90.40-420. Each control application will be recorded in a weed control log and will include the date, location, and details about the control that was applied. A copy of this log is attached.

Re-inspections following use of a control method will include the date, location, evaluation of how effective the control was in reaching the target control levels, and recommendations for follow up actions.

3. Prevent Pests

Preventative measures that will be taken

The primary measure to control undesirable vegetation at the site is to maintain a surface of compacted gravel that generally would not be conducive for vegetation. While application of a pre-emergent herbicide would offer long-term control, it is not desirable and not necessary once the vegetation is controlled.

Vegetation is becoming well established growing around the injection/withdrawal wells, under and around piping, around structures, and under or around all other ancillary features on the site. Site inspections and periodic spot treatment of a post-emergent, non-residual, systemic herbicide to vegetation early and throughout the growing season is intended to eradicate vegetation before seed production, thereby preventing future re-establishment of undesirable vegetation.

Frequency of application of preventative measures

Preventative measure will initially be applied once, then as necessary to control any new vegetation. Subsequent routine inspections and evaluation of the success of spot treatments for ongoing maintenance, will determine whether alternate or continued preventative measures are required, and the need and frequency of future applications.

4. Control Measures

Potential non-chemical control measures that may be used

Cultural Controls:	There are no identified cultural controls for this type of growth.
Mechanical Controls:	Vegetation could be pulled by hand or grubbed, but that is not likely to be the most effective choice due to the size of the property, and the moderate to extreme distribution and abundance of vegetation growth. Numerous cottonwood saplings, with extensive root systems, have become established in parts of the well pad. Cutting, grubbing or pulling by hand will not be practicable as new plants of some species may emerge from remnants of rhizomes. Periodic cutting or mowing is not practicable. The weeds must be controlled before they are the size where mowing would be possible. Further, the substrate is gravel and would be hazardous to mow.

Characteristics needed in any chemical controls that may be used

The control product should be a systemic herbicide to ensure that the entire plant is eradicated. Due to the large management area, the selected product should have characteristics to reduce the frequency of required application and prevent future weed growth. Further, a broad spectrum herbicide is preserved to eradicate a wide variety of undesirable grasses, herbaceous forbs, and woody vegetation.

Potential chemical controls that may be used

Target Pest	Product Name	EPA Registration Number
Vegetation	Roundup Weed & Grass Killer Concentrate Plus	71995-29
Woody Vegetation	Spectricide Weed and Grass Killer Concentrate 2	9688-265-8845

How treated areas will be re-inspected and evaluated for effectiveness of controls

Following application of controls (mechanical or chemical), the certified applicator will re-inspect each treated area to determine if the applied controls achieved the target control level.

The certified applicator will evaluate the effectiveness of controls. If control actions did not achieve the target control level, the certified applicator will recommend and implement modifications or additional controls.

ENSTAR permitting staff will conduct periodic site inspections during the growing season to assist with plant identification as necessary, to monitor the effectiveness of control measures, and to monitor compliance with permit and regulatory requirements applicable to the site.

References

- Alaska Center for Conservation Science. 2016. Non-Native Plant Species List and Invasive Plant Profiles. <http://accs.uaa.alaska.edu/invasive-species/non-native-plant-species-list/#content>
- Alaska Department of Natural Resources, Division of Agriculture, Plant Materials Center. 2014. Field Guide - Terrestrial Weed Identification. Alaska Plant Materials Center. 2nd Edition. (<http://plants.alaska.gov/pdf/TerrestrialWeedIdentificationGuide.pdf>)
- Flagstad, L., Cortes-Burns, H., and Greenstein, C. 2015. Identification of Non-native Plants in Alaska. Alaska Natural Heritage Program, University of Alaska, Anchorage. 219 pp. (http://aknhp.uaa.alaska.edu/big-files/AKEPIC/Publications/2015/2015_Identification_of_Non-native_Plants_in_AK.pdf)
- Graziano, Gino. No date. Weed Seedling Identification. Integrated Pest Management Webinar. University of Alaska Fairbanks Cooperative Extension Service. Integrated Pest Management Program. http://www.kenaiweeds.org/user_images/Weed%20Seedling%20Identification.pdf
- Kenai Peninsula Cooperative Weed Management Area. 2009. High Priority Invasive Plants of the Kenai Peninsula. http://www.kenaiweeds.org/user_images/Kenai%20Peninsula%20invasive%20plant%20field%20guide.pdf
- Kenai Peninsula Cooperative Weed Management Area. 2013. Preventing the Spread of Invasive Species: Prevention Guidelines for Field Research. April 2013. http://www.kenaiweeds.org/user_images/Prevention%20Guidelines.pdf
- U.S. Department of Agriculture, Forest Service. 2009. Selected Invasive Plants of Alaska. Forest Service Alaska Region. Publication R10-TP-130B. (http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fsbdev2_037726.pdf)
- U.S. Department of Agriculture, Natural Resources Conservation Service. Plants Database. Introduced, Invasive, and Noxious Plants - Alaska State-listed Noxious Weeds. (<http://plants.usda.gov/java/noxious?rptType=State&statefips=02>)